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Appendix B—Market Share Estimates

An integral part of DATAQUEST's Semiconductor Industry Service data base is the analysis of semiconductor markets through estimation of market share by manufacturer. This analysis provides insights into semiconductor markets and reinforces estimates of consumption, production, and company revenues made using other data. Table B-1 gives market share estimates for the total worldwide semiconductor market. Tables B-2, B-18, and B-28 further segment the semiconductor market into integrated circuits, discrete devices, and optoelectronic devices. Each of these categories is divided into a number of subgroups, and some subgroups are further segmented. In general, these product divisions are self-explanatory. The difference between signal and power transistors or diodes is set at the 1-watt power-handling capability level. Special discrete semiconductor devices that are neither transistors, diodes, nor thyristors are categorized as "Other" and shown in Table B-27. An index of all tables is included for easy reference. Tables B-9 through B-11 and Tables B-13 through B-17 are not included at this time; however, the space is maintained for future expansion.

The semiconductor market is divided among U.S. companies, European companies, Japanese companies, and Rest-of-World (ROW) companies based on the location of their main offices. While almost all U.S. semiconductor companies are listed, only the leading European and Japanese companies are included.

Although only a limited number of companies are included in the tables, our computer stores information on more than 100 companies. When not shown explicitly, their production is included in "Others."

The totals given for U.S. companies reflect worldwide production. For example, Texas Instruments manufactures semiconductors in many parts of the world, and its entire production is included under the U.S. companies' market share section. In contrast, foreign-owned subsidiaries, such as Litronix and FMC, are included in the U.S. totals and not in the total of the parent company location. The total for U.S. companies, therefore, is not the same as for U.S. semiconductor consumption (Table A-2) or U.S. factory shipments (Table A-7) detailed in Appendix A.

DEFINITIONS AND CONVENTIONS

Companies Included

DATAQUEST utilizes a common basis of companies for all its data tables. This basis includes all non-captive suppliers to the semiconductor market. It excludes captive suppliers that manufacture devices solely for the benefit of the parent company, such as Burroughs, IBM, NCR, and Western Electric, but includes companies that actively market semiconductor devices to industry as well as to other divisions of their own company. Both external and internal consumption and shipments are included for these companies. Value of devices used internally is estimated at current market prices.

Appendix B—Market Share Estimates

Regional Breakdown - Appendix A Definitions and Appendix B Definitions

The criteria used for placing semiconductor revenues in one of the four geographic regions are different in Appendix A, Tables A-1 to A-5; Appendix A, Tables A-6 to A-10; and Appendix B. Consumption, as used in Tables A-1 to A-5, is defined as the purchase of a semiconductor device or devices. This definition must be differentiated from actual use of the device in a final product. Devices that are inventoried at the user level are considered consumption under our definition and consumption values are assigned to the region to which the product was shipped.

The fabrication and assembly of a semiconductor device may be performed in several different locations. For the purposes of this data base, factory shipments, as the term is used in Tables A-6 to A-10, are defined geographically as occurring from that point where the device was tested and marked, irrespective of where the device was assembled or where initial wafer fabrication was performed. In general, factory shipments and production are equated, but devices inventoried at the manufacturer's level are not included in DATAQUEST's basis for factory shipments.

In Appendix B, value of shipments is assigned to the geographic region in which the home base of the company is located, regardless of where the device was actually manufactured. For example, consider a device manufactured, tested, and marked at National Semiconductor's Greenock, Scotland plant and shipped to IBM in the United States. Those revenues would appear in Table A-2, Estimated North American Semiconductor Consumption, because the part was shipped to IBM in the United States. The revenues would appear again in Table A-9, Estimated European Semiconductor Factory Shipments, because Scotland is in Europe. Finally, because National Semiconductor is a U.S.-based company, the revenues would appear under "U.S. Companies" in Appendix B.

Hybrid Circuits

Because of prior reporting methods used by the Electronic Industries Association (EIA) and the Japanese Ministry for International Trade and Industry (MITI), hybrid devices are included as a product segment of integrated circuits prior to 1973. This segmentation is somewhat artificial because hybrid devices are primarily a special packaging arrangement. As a result, DATAQUEST has deleted this segment for the years after 1973. However, hybrids are included in the Linear Table, B-13, for principal hybrid suppliers who do wafer fab. When the hybrid values are known, they are broken out in a footnote at the bottom of the table.

Exchange Rate Conventions

Estimates of Japanese consumption or factory shipments use the exchange rate (yen/dollar) for the given year. Refer to the footnotes on the tables for the exchange

Appendix B—Market Share Estimates

rates used. In viewing the year-to-year Japanese market growth rate, one must take into consideration the different exchange rates in effect during the year. For the European market, value of shipments is estimated directly in dollars.

DATA SOURCES

There is no official body in the United States or Europe—government organization, industry association, or trade publication—that maintains complete or near complete statistics on the semiconductor industry. In Japan some statistics are kept by the MITI. It should be clear from the broad scope and detailed breakdown of these tables that their development is a major effort. We believe that the estimates presented here are the most accurate and meaningful generally available today. The sources of the data presented in the tables are:

- Unit sales or revenues (or both) published by major industry participants
- Estimates presented by knowledgeable and reliable industry spokesmen
- Government data or trade association data such as MITI, EIA, or SIA
- Published product literature and price lists
- Interviews with knowledgeable manufacturers, distributors, and users
- Relevant projected world economic data

Most estimates have been reviewed by knowledgeable market research analysts from several of the major industry participants, and revisions were made if justified by the additional data that they provided. Thus, these estimates represent a reasonably good consensus of the industry's own estimates.

CONSISTENCY

One of the key objectives in preparing these estimates has been to achieve consistency among the various data elements that constitute the forecast and the past data base. The opportunity to check the numeric value of a directly obtained data element by deriving it indirectly from other data elements through one or more alternative means has been of great assistance in assuring the accuracy and consistency of the estimates. Thus, the data in Appendix B are consistent with the market estimates in Appendix A; with the individual company revenue breakdowns presented in Volume III, Chapters 8, 9, 10, and 11; and with the summary tables presented in the "Markets" chapter, Volume I, Chapter 2.

Appendix B—Market Share Estimates

ACCURACY

The tables presented here represent estimates by DATAQUEST, which we believe are reasonably accurate. Accordingly, where we have no accurate estimate, one is not given. A blank space in a table indicates the unavailability of a reasonably accurate estimate, while a zero in a table represents an estimate.

NEED FOR CAREFUL INTERPRETATION

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, careful attention must be paid to the definitions and assumptions used here when interpreting the estimates presented in these tables. Various companies, government agencies, and trade associations may use slightly different definitions of product categories and regional groupings, or they may include different companies in their summaries. These differences should be kept in mind when making comparisons between these data and those provided by others.

Appendix B—Market Share Estimates

INDEX OF TABLES

<u>Product Segment</u>	<u>Table</u>
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
MOS	B-8
PMOS	B-9
NMOS	B-10
CMOS	B-11
Linear	B-12
Interface	B-13
Control	B-14
Entertainment	B-15
Other	B-16
Hybrid	B-17
Total Discrete	B-18
Transistor	B-19
Small Signal	B-20
Power Transistor	B-21
Diode	B-22
Small Signal	B-23
Power	B-24
Zener	B-25
Thyristor	B-26
Other	B-27
Total Optoelectronic	B-28
LED Lamps	B-29
LED Displays	B-30
Optical Couplers	B-31
Other	B-32

Appendix B—Market Share Estimates

Table B-1

TOTAL SEMICONDUCTOR MARKET SHARE ESTIMATES^{1,2}
(Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	3218	4799	5405	4373	5827	6645	8959	11116
U S COMPANIES	1940	2830	3366	2796	3519	4079	5123	6880
AMD	9	21	28	32	55	82	132	205
AMT	29	56	74	58	59	68	71	95
ANALOG DEVICES								
CIC						26	44	55
DELCO (GM)		27	21	20	22	12	14	17
DICKSON (SIEMENS)						29	38	52
ELECT ARRAYS (NEC)	8	16	18	15	17	14	12	16
EEM						17	21	25
FAIRCHILD	163	283	323	236	307	325	358	469
PMC (SIEMENS)								14
GENERAL ELECTRIC	2	106	114	83	107	109	113	120
GENERAL INSTRUMENT			63	57	106	117	125	292
GENERAL SEMI								12
HARRIS		22	37	42	44	60	85	115
HENLETT-PACKARD	9	24	29	44	65	52	69	85
HUGHES			11	13	17	23	17	12
INTEL	22	58	115	111	147	200	300	440
INTERNIGIL	13	24	49	46	59	61	67	92
IR		32	43	45	49	61	70	80
ITT		121	160	120	144	155	165	185
LITRONIX (SIEMENS)	14	22	21	23	19	15	16	31
MARRIOTT						4	9	10
MMI	3	13	20	18	20	25	31	36
MOTOROLA	9	18	17	17	21	19	30	0
MOSTEK	18	39	48	38	56	83	125	210
MOS TECHNOLOGY						8	8	15
MOTOROLA	306	445	481	362	462	542	680	919
NATIONAL SEMI	80	153	210	215	256	304	420	616
NITRON								
PRECISION MONOLITH					7	12	15	21
RAYTHEON		35	42	30	32	33	42	54
RCA		141	183	148	174	206	240	276
ROCKWELL		40	52	60	50	47	52	70
SIGNETICS (PHILIPS)	48	98	121	82	125	175	214	265
SILICONIX	12	19	21	23	25	30	43	53
SPACE STATE SCI	2	10	17	8	17	16	25	26
SOLITRON		15	22	16	18	20	21	29
SPECTRONICS	1	2	3	5	7	11	11	15
SPRAGUE		5	20	14	20	23	33	43
STD MICROSYSTEMS						8	10	15
SUPERTEX								11
SYNLER				1	5	19	33	50
TELEDYNE		36	45	30	25	22	21	20
TEXAS INSTRUMENTS	414	604	634	520	655	741	921	1212
TRW	1	24	36	35	37	43	47	75
UNITRODE	19	24	29	25	29	33	40	69
VARO	19	29	21	24	33	36	37	41
WESTERN DIGITAL	2	9	13	7	5	6	6	12
WESTINGHOUSE		27	36	29	38	40	47	53
ZILCO						3	8	20
OTHERS	737	232	189	144	175	144	237	288

Appendix B—Market Share Estimates

Table B-1 (Continued)

TOTAL SEMICONDUCTOR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
JAPANESE COMPANIES	783	1255	1120	844	1429	1738	2484	2763
FUJITSU						89	124	209
HITACHI	121	195	178	198	267	279	465	498
MATSUSHITA	124	164	138	108	177	192	254	222
MITSUBISHI	57	84	72	56	126	139	147	195
NIPPON ELECTRIC	115	198	200	211	314	369	519	559
OKI								
SANYO							103	129
TOSHIBA	119	155	167	134	236	263	401	462
OTHERS	247	459	365	137	308	407	472	500
EUROPEAN COMPANIES	481	690	881	729	869	1015	1234	1448
AGG-TELEFUNKEN		45	55	48	55	87	111	135
FERRANTI						23	27	31
PHILIPS		246	340	275	325	355	431	505
PLESSEY						15	25	27
SGS		65	85	56	55	34	100	120
SIEMENS ⁵		119	144	151	215	250	292	356
THOMSON-CSF		65	80	74	82	93	130	160
OTHERS		150	177	125	136	108	118	114
REST OF WORLD	14	23	38	4	12	14	18	25
HIL	12	20	32	4	0	0	0	0
OTHERS	2	3	6	0	12	14	18	25

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²Totals include the following estimated amounts of hybrid ICs: Motorola (1978, 1979) - \$11 million and \$15 million; NSC (1977, 1978, 1979) - \$13 million, \$22 million, and \$40 million; TI (1978) - \$20 million; Philips (1979) - \$55 million.

³In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

⁴In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

⁵Siemens' 1979 revenues do not include Dickson, however, earlier Siemens' revenues do include Dickson.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-2

TOTAL INTEGRATED CIRCUIT MARKET SHARE ESTIMATES^{1,2}
(Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	1320	2046	2510	2120	2941	3687	5235	7126
U S COMPANIES	958	1463	1880	1569	2068	2591	3449	4956
AMD	9	21	28	32	55	82	132	205
AMI	29	56	74	58	59	68	71	95
ANALOG DEVICES						26	43	55
DELOO(GM)				7	9	17	26	37
ELECT ARRAYS(NDC)	8	16	18	15	17	14	12	16
EVM						17	21	28
FAIRCHILD	97	186	212	144	204	226	253	353
GENERAL INSTRUMENT			32	32	73	77	75	96
HARRIS		22	37	42	44	60	85	115
HUGHES			11	13	17	23	17	12
INTEL	22	58	115	111	147	200	300	440
INTERGIL	11	21	46	43	55	55	61	85
ITT		46	58	40	47	62	70	85
MARUMAN						4	9	10
MCI	3	13	20	18	20	25	31	36
MOSTEK	18	39	48	38	56	83	125	210
MOS TECHNOLOGY						8	8	15
MOTOROLA	90	139	168	120	172	227	329	500
NATIONAL SEMI	65	127	174	168	220	262	370	550
NITRON								
PRECISION MONOLITH					7	12	15	21
RAYTHEON		23	28	19	20	20	30	36
RCA		82	108	70	83	108	127	150
ROCKWELL		40	52	60	50	47	52	70
SIGNETICS(PHILIPS)	48	98	121	82	125	175	214	265
SILICONIX	6	8	9	14	14	17	30	34
SOLID STATE SCI	2	5	11	4	12	11	18	26
SPRAGUE			14	10	14	17	27	39
STD MICROSYSTEMS						8	10	15
SUPERTEX								11
SYNERTEX				1	5	19	33	50
TELETYPE		12	16	11	9	7	9	11
TEXAS INSTRUMENTS	219	363	374	300	421	514	679	952
TRN	1	4	5	8	6	9	10	13
WESTERN DIGITAL	2	9	13	7	5	6	6	12
ZILOG						3	8	20
OTHERS	328	75	88	102	102	82	143	184

Appendix B—Market Share Estimates

Table B-2 (Continued)

TOTAL INTEGRATED CIRCUIT MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
JAPANESE COMPANIES	241	399	382	343	605	748	1313	1651
FUJITSU						60	91	175
HITACHI	40	68	74	83	120	127	259	284
MATSUSHITA	20	29	25	22	40	60	86	98
mitsubishi	20	32	26	25	50	54	70	126
NIPPON ELECTRIC	49	93	104	107	153	187	299	364
OKI							52	66
SANYO							189	220
TOSHIBA	30	41	49	49	90	111	189	220
OTHERS	82	136	104	57	152	149	267	329
EUROPEAN COMPANIES	107	161	210	204	250	338	459	604
ADG-TELEFUNKEN		10	11	10	12	16	23	28
FERRANTI						13	16	19
PHILIPS		45	60	75	100	111	165	215
PLESSEY						15	25	27
SGS		22	25	23	25	49	59	74
SIEMENS		39	49	48	75	83	106	150
THOMSON CSF		14	19	14	17	20	30	40
OTHERS		31	46	34	31	31	35	51
REST OF WORLD	14	23	38	4	8	10	14	15
MIL	12	20	32	4	0	0	0	0
OTHERS	2	3	6	0	8	10	14	15

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²Totals include the following estimated amounts of hybrid ICs: Motorola (1978, 1979) - \$11 million and \$15 million; NSC (1977, 1978, 1979) - \$13 million, \$22 million, and \$40 million; TI (1978) - \$20 million; Philips (1979) - \$55 million.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-3

BIPOLAR DIGITAL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	538	921	979	632	905	1034	1405	1799
U S COMPANIES	422	741	777	524	680	906	1023	1365
AMD	9	18	14	14	21	31	37	55
AMI	0	0	0	0	0	0	0	0
ANALOG DEVICES						1	1	0
DELCO(GM)	0	0	0	0	0	0	0	0
ELECT ARRAYS(NEC)				0	0	0	0	0
EMM						0	0	0
FAIRCHILD	66	134	139	74	106	116	141	198
GENERAL INSTRUMENT			0	0	0	0	0	0
HARRIS		15	17	16	15	26	36	48
HUGHES			3	3	2	4	3	0
INTEL	6	17	15	12	15	15	17	22
INTERCIL	5	10	15	10	12	10	7	10
ITT		31	34	20	19	23	25	32
MARUMAN						0	0	0
MMI	3	13	20	18	20	25	31	36
MOSTEK	0	0	0	0	0	0	0	0
MOS TECHNOLOGY	0	0	0	0	0	0	0	0
MOTOROLA	52	75	85	48	58	68	90	115
NATIONAL SEMI	28	65	70	48	75	83	108	145
NITRON								
PRECISION MONOLITH					0	0	0	0
RAYTHEON		11	14	9	9	8	15	19
RCA		0	0	0	0	0	0	0
ROCKWELL		0	0	0	0	0	0	0
SIGNETIC(PHILIPS)	37	73	86	55	85	110	132	175
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	0	0	0	0	0	0	0	0
SPRAGUE	0	0	5	4	5	0	0	0
STD MICROSYSTEMS						0	0	0
SUPERTEX								0
SYNERTEK				0	0	0	0	0
TELETYPE		6	9	5	4	3	4	4
TEXAS INSTRUMENTS	161	255	234	145	215	242	306	430
TRW	0	2	2	8	6	9	10	16
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILCO						0	0	0
OTHERS	55	16	15	35	13	32	60	57
JAPANESE COMPANIES	57	96	91	64	99	129	194	217
FUJITSU						34	47	54
HITACHI	14	15	19	18	18	21	38	45
MATSUSHITA	1	2	2	1	2	6	10	10
MITSUBISHI	8	11	11	7	19	12	15	20
NIPPON ELECTRIC	14	25	25	16	19	27	39	35
OKI								
SANYO							10	11
TOSHIBA	5	7	8	6	8	11	8	9
OTHERS	15	36	26	16	33	18	27	33
EUROPEAN COMPANIES	57	81	105	94	120	143	182	212
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	2	3	6	0	6	6	6	5
MIL	0	0	0	0	0	0	0	0
OTHERS	2	3	6	0	6	6	6	5

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-4

TTL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	349	652	721	499	711	579	1120	1400
U S COMPANIES	284	570	605	392	553	674	836	1152
AMD	9	18	14	14	21	31	37	56
AMI	0	0	0	0	0	0	0	0
ANALOG DEVICES						1	1	0
DELCO(GM)	0	0	0	0	0	0	0	0
ELECT ARRAYS(NEC)				0	0	0	0	0
EMM	0	0	0	0	0	0	0	0
FAIRCHILD	41	99	105	53	80	83	105	150
GENERAL INSTRUMENT			0	0	0	0	0	0
HARRIS		10	12	12	12	24	35	47
HUGHES			3	3	2	4	3	0
INTEL	6	17	15	12	15	15	17	22
INTERCIL	5	10	14	10	12	10	7	10
ITT		19	26	15	6	12	15	22
MARUHAN						0	0	0
M-CI	3	13	20	18	20	25	31	36
MOSTEK	0	0	0	0	0	0	0	0
MOS TECHNOLOGY						0	0	0
MOTOROLA	19	33	36	15	19	24	31	47
NATIONAL SEMI	25	62	67	48	75	83	108	145
NITRON								
PRECISION MONOLITH	0	0	0	0	0	0	0	0
RAYTHEON		7	10	7	9	8	15	19
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS(PHILIPS)	31	53	76	47	79	100	122	163
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	0	0	0	0	0	0	0	0
SPRAGUE	0	0	3	3	4	0	0	0
STD MICROSYSTEMS						0	0	0
SUPERTEX								0
SYNERTEX				0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	125	220	204	120	187	228	286	413
TRI	0	0	0	8	6	9	10	19
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG						0	0	0
OTHERS	20	0	0	7	6	17	13	0
JAPANESE COMPANIES	27	31	40	38	64	86	129	153
FUJITSU								
HITACHI								
KATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	38	51	76	69	82	113	149	166
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	6	6	6	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	6	6	6	5

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Appendix B—Market Share Estimates

Table B-5

DTL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	96	119	105	81	71	55	53	45
U S COMPANIES	82	92	81	65	55	39	36	30
AMD	0	0	0	0	0	0	0	0
AMI	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	0	0	0	0	0
DELCO(GM)	0	0	0	0	0	0	0	0
ELECT ARRAYS(NEC)	0	0	0	0	0	0	0	0
EMI	0	0	0	0	0	0	0	0
FAIRCHILD	21	31	27	14	15	12	10	8
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
HARRIS	0	5	5	4	3	2	1	1
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERMIL	0	0	0	0	0	0	0	0
ITT	0	12	8	5	4	2	1	1
MARUHAN	0	0	0	0	0	0	0	0
MTI	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOS TECHNOLOGY	0	0	0	0	0	0	0	0
MOTOROLA	13	13	10	10	13	9	9	9
NATIONAL SEMI	0	0	0	0	0	0	0	0
NITRON	0	0	0	0	0	0	0	0
PRECISION MONOLITH	0	0	0	0	0	0	0	0
RAYTHEON	0	4	4	2	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS(PHILIPS)	6	9	8	6	4	4	4	3
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	0	0	0	0	0	0	0	0
SPRAGUE	0	0	2	1	1	0	0	0
STD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPRETEX	0	0	0	0	0	0	0	0
SYNERTEK	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	14	9	11	15	15	10	9	8
TRW	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG	0	0	0	0	0	0	0	0
OTHERS	28	9	6	8	0	0	2	0
JAPANESE COMPANIES	8	14	12	8	6	7	9	7
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	0	0	0	0	0	0	0	0
MATSUSHITA	0	0	0	0	0	0	0	0
MITSUBISHI	0	0	0	0	0	0	0	0
NIPPON ELECTRIC	0	0	0	0	0	0	0	0
OKI	0	0	0	0	0	0	0	0
SANHO	0	0	0	0	0	0	0	0
TOSHIBA	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0
EUROPEAN COMPANIES	8	13	12	8	10	9	8	8
AEG-TELEFUNKEN	0	0	0	0	0	0	0	0
FERRANTI	0	0	0	0	0	0	0	0
PHILIPS	0	0	0	0	0	0	0	0
PLESSEY	0	0	0	0	0	0	0	0
SGS	0	0	0	0	0	0	0	0
SIEMENS	0	0	0	0	0	0	0	0
THOMSON CSP	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-6

ECL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	58	67	73	55	76	94	140	160
U S COMPANIES	37	43	50	34	39	55	82	102
A/D	0	0	0	0	0	0	0	0
A/I	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	0	0	0	0	0
DELCO(GM)	0	0	0	0	0	0	0	0
ELECT ARRAYS(NEC)	0	0	0	0	0	0	0	0
EMI	0	0	0	0	0	0	0	0
FAIRCHILD	0	1	3	3	6	18	23	28
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
HARRIS	0	0	0	0	0	0	0	0
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	0	0	1	0	0	0	0	0
ITT	0	0	0	0	0	0	0	0
MARUMAN	0	0	0	0	0	0	0	0
MHI	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOS TECHNOLOGY	0	0	0	0	0	0	0	0
MOTOROLA	17	23	31	19	18	30	43	52
NATIONAL SEMI	0	0	0	0	0	0	0	0
NITRON	0	0	0	0	0	0	0	0
PRECISION MONOLITH	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS(PHILIPS)	0	1	2	2	2	4	6	9
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
STD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
SYNERTEK	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	15	17	12	10	5	0	8	5
TRW	0	1	1	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG	0	0	0	0	0	0	0	0
OTHERS	5	0	0	0	6	3	2	8
JAPANESE COMPANIES	12	14	14	15	28	30	49	46
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	0	0	0	0	0	0	0	0
MATSUSHITA	0	0	0	0	0	0	0	0
MITSUBISHI	0	0	0	0	0	0	0	0
NIPPON ELECTRIC	0	0	0	0	0	0	0	0
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0
EUROPEAN COMPANIES	9	10	9	6	9	9	9	12
AEG-TELEFUNKEN	0	0	0	0	0	0	0	0
FERRANTI	0	0	0	0	0	0	0	0
PHILIPS	0	0	0	0	0	0	0	0
PLESSEY	0	0	0	0	0	0	0	0
SGS	0	0	0	0	0	0	0	0
SIEMENS	0	0	0	0	0	0	0	0
THOMSON CSF	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-7

OTHER BIPOLAR DIGITAL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	33	83	80	47	47	56	92	112
U S COMPANIES	19	36	41	33	33	39	69	75
AMD	0	0	0	0	0	0	0	0
AMI	0	0	0	0	0	0	0	0
ANALOG DEVICES						0	0	0
DELCO (GM)	0	0	0	0	0	0	0	0
ELEC ARRAYS (NEC)	0	0	0	0	0	0	0	0
ENVY						0	0	0
FAIRCHILD	4	4	4	4	3	3	3	2
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
HARRIS	0	0	0	0	0	0	0	0
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
ITT	0	0	0	0	9	9	9	9
MARUMAN	0	0	0	0	0	0	0	0
MMI	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOS TECHNOLOGY						0	0	0
MOTOROLA	3	6	8	4	8	5	7	7
NATIONAL SEMI	3	3	3	0	0	0	0	0
NITRON	0	0	0	0	0	0	0	0
PRECISION MONOLITH						0	0	0
RAYTHEON		0	0	0	0	0	0	0
RCA		0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS (PHILIPS)	0	0	0	0	0	2	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI		0	0	0	0	0	0	0
SPRAGUE		0	0	0	0	0	0	0
STD MICROSYSTEMS						0	0	0
SUPERTEX								0
SYNERTEX			0	0	0	0	0	0
TELEDYNE		6	9	5	4	3	4	4
TEXAS INSTRUMENTS	7	9	7	0	8	4	3	4
TRW	0	1	1	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG		0	0	0	0	0	0	0
OTHERS	2	7	9	20	1	12	43	49
JAPANESE COMPANIES	10	37	25	3	1	6	7	11
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SAIYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	7	8	11	13	12	16	26
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	2	3	6	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	2	3	6	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-8

MOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	276	585	880	837	1229	1539	2309	3430
U S COMPANIES	180	412	687	656	945	1203	1640	2433
AMD	0	3	8	12	25	37	71	109
AMI	29	56	74	58	59	68	71	95
ANALOG DEVICES						4	12	14
DELOD(GM)				0	0	0	0	3
ELECT ARRAYS(NEC)	8	16	18	15	17	14	12	16
EMI						17	21	28
FAIRCHILD	5	12	20	22	35	59	52	75
GENERAL INSTRUMENT			29	29	68	72	68	90
HARRIS	0	5	7	12	16	12	18	30
HUGHES	0	0	8	10	15	19	14	12
INTEL	16	41	100	99	132	185	253	418
INTERCIL	3	5	23	26	36	33	35	45
ITT		1	3	2	5	12	15	21
MARUMAN						4	9	10
MTI	0	0	0	0	0	0	0	0
MOSTEK	18	39	48	38	56	83	125	210
MOS TECHNOLOGY	0	0	0	0	0	8	8	15
MOTOROLA	10	17	23	24	55	92	143	260
NATIONAL SEMI	9	21	40	50	77	80	130	220
NITRON								
PRECISION MONOLITH	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA		35	58	29	45	61	69	82
ROCKWELL		40	52	60	50	47	52	70
SIGNETICS(PHILIPS)	4	7	11	10	12	25	32	35
SILICONIX	3	4	5	7	6	8	10	10
SOLID STATE SCI	2	5	11	4	12	11	18	26
SPRAGUE			0	0	0	0	0	0
STD MICROSYSTEMS						6	10	15
SUPERTEX								11
SYNERTEK				1	5	19	33	50
TELEDYNE			0	1	2	2	3	5
TEXAS INSTRUMENTS	25	65	88	100	135	180	238	352
TRW		0	0	0	0	0	0	0
WESTERN DIGITAL	2	9	13	7	5	6	6	12
ZILLOG						3	8	20
OTHERS	46	31	48	40	77	35	74	124
JAPANESE COMPANIES	75	140	144	159	257	299	605	832
FUJITSU						21	38	113
HITACHI	16	35	38	43	63	62	139	147
MATSUMITA	3	5	4	5	7	10	21	34
MITSUBISHI	6	12	6	11	19	24	25	69
NIPPON ELECTRIC	17	37	42	54	74	98	183	231
OKI								
SANYO							10	18
TOSHIBA	22	15	20	24	35	41	88	135
OTHERS	21	36	34	22	59	43	101	85
EUROPEAN COMPANIES	9	13	17	18	25	35	56	105
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	12	20	32	4	2	2	8	10
NIL	12	20	32	4	0	0	0	0
OTHERS	0	0	0	0	2	2	8	10

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-12

LINEAR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	430	540	651	601	607	1064	1521	1897
U S COMPANIES	280	310	416	389	443	582	786	1009
AMD	0	0	6	6	9	14	24	40
AMI	0	0	0	0	0	0	0	0
ANALOG DEVICES						21	30	41
DELCO (G.)			0	7	9	17	26	34
ELECT ARRAYS (NEC)	0	0	0	0	0	0	0	0
ENM						0	0	0
FAIRCHILD	26	40	53	48	63	52	60	80
GENERAL INSTRUMENT	0	0	3	3	5	5	7	6
HARRIS		2	13	14	13	22	31	37
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	3	6	8	7	7	12	19	30
ITT		14	21	18	23	27	30	32
MARUMAN						0	0	0
MMI	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOS TECHNOLOGY						0	0	0
MOTOROLA	28	47	60	48	59	67	96	125
NATIONAL SEMI	28	41	64	70	68	99	132	185
NITRON								
PRECISION MONOLITH					7	12	15	21
RAYTHEON		12	14	10	11	12	15	17
RCA		47	50	41	38	47	58	68
ROCKWELL		0	0	0	0	0	0	0
SIGNETICS (PHILIPS)	7	18	24	17	28	40	50	55
SILICONIX	3	4	4	7	8	9	20	24
SOLID STATE SCI	0	0	0	0	0	0	0	0
SPRAGUE			9	6	9	17	27	38
STD MICROSYSTEMS						0	0	0
SUPRETEX								0
SYNERTEK				0	0	0	0	0
TELEDYNE		6	7	5	3	2	2	2
TEXAS INSTRUMENTS	33	43	52	55	71	92	135	170
TRN	1	2	3	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG						0	0	0
OTHERS	151	28	25	27	12	15	9	3
JAPANESE COMPANIES	109	163	147	120	249	320	514	602
FUJITSU						5	6	9
HITACHI	10	18	17	22	39	44	82	92
MAT'SUSHITA	16	22	19	16	31	44	55	44
MITSUBISHI	6	9	9	7	12	18	30	37
NIPPON ELECTRIC	18	31	37	37	60	62	77	98
OKI								
SANYO							32	37
TOSHIBA	13	19	21	19	47	59	93	76
OTHERS	46	64	44	19	60	88	139	210
EUROPEAN COMPANIES	41	67	88	92	115	160	221	287
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	2	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	2	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

² Totals include the following estimated amounts of hybrid ICs: Motorola (1978, 1979) - \$11 million and \$15 million; NSC (1977, 1978, 1979) - \$13 million, \$22 million, and \$40 million; TI (1978) - \$20 million; Philips (1979) - \$55 million.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-18

TOTAL DISCRETE DEVICE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	1791	2586	2700	2025	2598	2850	3205	3395
U S COMPANIES	904	1230	1318	1044	1238	1287	1406	1555
CTC						12	14	17
DELCO(GM)		27	21	13	13	12	12	15
DICKSON(SIEMENS)								17
FAIRCHILD	61	87	98	72	78	83	87	90
FNC(SIEMENS)								14
GENERAL ELECTRIC		103	110	79	101	102	102	114
GENERAL INSTRUMENT		30	31	25	33	40	50	67
GENERAL SEMI								12
HEWLETT-PACKARD	0	5	5	4	6	12	15	20
INTERSIL	2	3	3	3	4	6	6	7
IR		32	43	44	48	60	68	78
ITT		75	102	80	97	93	95	100
MOTOROLA	214	303	309	239	288	313	349	413
NATIONAL SEMI	8	15	21	25	31	27	32	41
RAYTHEON		12	14	11	12	13	12	18
RCA		59	75	78	90	97	105	118
SILICONIX	6	11	12	9	11	13	13	19
SOLID STATE SCI ²		5	6	4	5	5	7	0
SOLITRON		11	16	10	13	15	16	23
SPRAGUE		5	6	4	6	6	6	5
TELEDYNE		24	29	19	16	15	12	9
TEXAS INSTRUMENTS	183	213	218	177	174	170	176	184
TRW		20	31	27	31	34	37	32
UNITRODE	19	24	29	25	29	33	40	55
VARO	19	29	21	24	33	36	37	41
WESTINGHOUSE		27	36	29	38	40	47	50
OTHERS	392	110	82	43	81	50	68	98
JAPANESE COMPANIES	519	836	722	479	778	927	1074	963
FUJITSU						29	33	33
HITACHI	81	126	103	114	145	144	196	193
MATSUSHITA	103	133	111	82	131	130	157	124
1 MITSUBISHI	37	52	46	31	75	83	77	69
NIPPON ELECTRIC	65	102	93	101	157	176	209	181
OKI								
SANYO							49	59
TOSHIBA	88	108	112	78	131	141	192	207
OTHERS	145	315	257	73	139	224	164	97
EUROPEAN COMPANIES	368	520	660	505	575	632	718	757
AEG-TELEFUNKEN		35	44	38	43	71	88	92
FERRANTI						9	11	12
PHILIPS		201	280	200	220	234	254	276
PLESSEY								
SIS		43	60	33	30	35	41	46
SIEMENS ³		80	95	96	120	135	151	164
THOMSON CSF		51	61	60	65	73	100	120
OTHERS		110	120	78	100	75	73	47
REST OF WORLD	0	0	0	0	4	4	4	10
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	4	4	4	10

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

³Siemens' 1979 revenues do not include Dickson, however, earlier Siemens' revenues do include Dickson.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-19

TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			1400	1063	1343	1447	1557	1581
U S COMPANIES	649	681	555	637	655	705	808	
CTC					11	12	15	
DELOO (GM)	16	13	8	8	10	10	12	
DICKSON (SIEMENS)							0	
FAIRCHILD	60	68	46	51	51	54	55	
FMC (SIEMENS)							0	
GENERAL ELECTRIC	32	34	27	30	30	27	31	
GENERAL INSTRUMENT	1	1	1	1	0	0	0	
GENERAL SEMI	0	0	0	0	0	0	2	
HEWLETT-PACKARD	0	0	0	0	0	0	0	
INTERCIL	3	3	3	4	6	6	7	
IR	1	2	2	3	5	6	10	
ITT	24	33	25	31	30	30	30	
MOTOROLA	195	199	159	191	200	220	262	
NATIONAL SEMI	15	20	24	30	27	32	41	
RAYTHEON	9	10	8	8	10	12	18	
RCA	42	54	56	64	70	75	85	
SILICONIX	11	12	9	11	13	13	19	
SOLID STATE SCI ²	3	3	2	3	5	7	0	
SOLITRON	11	16	6	9	10	10	14	
SPRAGUE	5	6	4	6	6	6	5	
TELEDYNE	10	10	7	7	7	7	9	
TEXAS INSTRUMENTS	154	154	136	127	124	129	134	
TRW	17	26	23	26	28	30	32	
UNITRODE	2	2	2	2	2	3	5	
VARO	0	0	0	0	0	0	0	
WESTINGHOUSE	0	0	0	0	0	1	1	
OTHERS	38	15	7	25	10	15	21	
JAPANESE COMPANIES			413	278	434	520	548	457
FUJITSU						21	24	23
HITACHI						58	78	76
MATSUSHITA						92	105	80
MITSUBISHI						31	30	25
NIPPON ELECTRIC						96	118	87
OKI								
SANYO						0	44	50
TOSHIBA						73	110	107
OTHERS						149	83	58
EUROPEAN COMPANIES			306	230	268	268	300	311
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	4	4	4	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	4	4	4	5

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-20

SMALL SIGNAL TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			274	636	803	811	861	827
U S COMPANIES	368	367	302	332	321	345	390	
CTC	0	0	0	0	2	2	3	
DELCO(GM)	0	0	0	0	0	0	0	
DICKSON(SIEMENS)								0
FAIRCHILD	51	52	33	33	32	37	40	
FXC(SIEMENS)								0
GENERAL ELECTRIC	27	26	23	24	22	20	22	
GENERAL INSTRUMENT	1	1	1	1	0	0	0	
GENERAL SEMI	0	0	0	0	0	0	0	
HEWLETT-PACKARD	0	0	0	0	0	0	0	
INTERCIL	3	3	3	4	6	6	7	
IP	0	0	0	0	0	0	0	
ITT	24	33	25	31	30	30	30	
MOTOROLA	103	105	84	102	102	115	137	
NATIONAL SEMI	13	17	21	25	20	22	27	
RAYTHEON	9	10	8	8	10	12	18	
RCA	1	1	1	1	2	3	5	
SILICONIX	11	12	9	11	13	12	16	
SOLID STATE SCI ²	0	0	0	0	0	0	0	
SOLITRON	0	0	1	2	2	2	2	
SPRAGUE	5	6	4	6	6	6	5	
TELEDYNE	10	10	7	7	7	7	9	
TEXAS INSTRUMENTS	92	85	79	65	62	63	64	
TRW	1	1	1	1	1	1	1	
UNITRODE	0	0	0	0	0	0	0	
VARO	0	0	0	0	0	0	0	
WESTINGHOUSE	0	0	0	0	0	0	0	
OTHERS	17	3	2	11	4	7	4	
JAPANESE COMPANIES			291	179	287	316	329	253
FUJITSU								
HITACHI								
MATSUSHITA								
HITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES			216	157	180	170	183	179
AEG-TELEFUNKEN ¹								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	4	4	4	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	4	4	4	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

² In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-21

POWER TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			526	425	540	636	696	734
U S COMPANIES	281	314	253	305	334	360	416	
CTC	0	0	0	0	9	10	12	
DELCO (GM)	16	13	8	8	10	10	12	
DICKSON (SIEMENS)							0	
FAIRCHILD	9	16	13	18	19	17	15	
FMC (SIEMENS)							0	
GENERAL ELECTRIC	5	6	4	6	8	7	9	
GENERAL INSTRUMENT	0	0	0	0	0	0	0	
GENERAL SEMI	0	0	0	0	0	0	2	
HEWLETT-PACKARD	0	0	0	0	0	0	0	
INTERMIL	0	0	0	0	0	0	0	
IR	1	2	2	3	5	6	10	
ITT	0	0	0	0	0	0	0	
MOTOROLA	92	94	75	89	98	105	125	
NATIONAL SEMI	2	3	3	5	7	10	14	
RAYTHEON	0	0	0	0	0	0	0	
RCA	41	53	55	63	68	72	80	
SILICONIX	0	0	0	0	0	1	3	
SOLID STATE SCI ²	3	3	2	3	5	7	0	
SOLITRON	11	16	5	7	8	8	12	
SPRAGUE	0	0	0	0	0	0	0	
TELEDYNE	0	0	0	0	0	0	0	
TEXAS INSTRUMENTS	62	69	57	62	62	66	70	
TRW	16	25	22	25	27	29	31	
UNITRODE	2	2	2	2	2	3	5	
VARO	0	0	0	0	0	0	0	
WESTINGHOUSE	0	0	0	0	0	1	1	
OTHERS	21	12	5	14	6	8	17	
JAPANESE COMPANIES			122	99	147	204	219	204
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES			90	73	88	98	117	132
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD			0	0	0	0	0	0
MIL			0	0	0	0	0	0
OTHERS			0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-22

DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			944	709	961	977	1173	1271
U S COMPANIES	403	443	349	423	435	498	600	
CTC	0	0	0	0	0	0	0	0
DELCO (GM)	11	8	5	5	2	2	3	
DICKSON (SIEMENS)								17
FAIRCHILD	26	26	24	25	30	33	35	
FNC (SIEMENS)	0	0	0	0	0	0	0	0
GENERAL ELECTRIC	37	40	28	37	37	27	31	
GENERAL INSTRUMENT	29	30	24	32	40	50	67	
GENERAL SEMI								4
HENLETT-PACKARD	0	1	1	1	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
IR	21	28	29	30	38	42	45	
ITT	46	61	50	60	58	60	65	
MOTOROLA	75	78	64	75	89	104	116	
NATIONAL SEMI	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	2	3	2	2	0	0	0	0
SOLITRON			4	4	5	6	9	
SPRAGUE	0	0	0	0	0	0	0	0
TELEDYNE	14	19	12	9	8	5	0	
TEXAS INSTRUMENTS	47	50	30	32	31	34	37	
TR	3	5	4	5	6	7	0	
UNITRODE	18	22	19	23	26	32	45	
VARO	29	21	24	33	36	37	41	
WESTINGHOUSE	13	16	14	16	15	17	21	
OTHERS	32	33	15	34	14	42	62	
JAPANESE COMPANIES			240	159	252	294	378	361
FUJITSU						8	9	10
HITACHI						66	88	90
MATSUSHITA						30	44	36
MITSUBISHI						20	18	16
NIPPON ELECTRIC						53	68	65
OKI								
SANYO							5	9
TOSHIBA						48	62	65
OTHERS						69	84	70
EUROPEAN COMPANIES			256	201	226	248	297	305
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD			0	0	0	0	0	5
MLL			0	0	0	0	0	0
OTHERS			0	0	0	0	0	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-23

SMALL SIGNAL DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			323	211	276	279	316	352
U S COMPANIES	136	156	103	123	115	123	153	
CTC	0	0	0	0	0	0	0	0
DELCO(GM)	0	0	0	0	0	0	0	0
DICKSON(SIEMENS)								0
FAIRCHILD	24	24	21	21	23	25	29	0
FMC(SIEMENS)								0
GENERAL ELECTRIC	5	6	5	6	6	4	3	
GENERAL INSTRUMENT	14	15	11	16	19	26	34	
GENERAL SEMI	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	0	0	0	0	0	0	0	0
INTERMIL	0	0	0	0	0	0	0	0
IR	0	0	0	0	0	0	0	0
ITT	23	31	26	32	30	30	30	
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMI	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	2	3	2	2	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
TELEDYNE	7	10	6	4	3	0	0	0
TEXAS INSTRUMENTS	36	37	19	20	19	20	22	
TRN	0	0	0	0	0	0	0	0
UNITRODE	4	5	4	5	6	9	13	
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	23	25	9	17	9	9	22	
JAPANESE COMPANIES			66	36	77	88	110	115
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES			101	72	76	76	83	79
AGC-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD			0	0	0	0	0	5
MIL			0	0	0	0	0	0
OTHERS			0	0	0	0	0	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-24

POWER DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			482	398	504	569	622	736
U S COMPANIES	198	217	189	238	256	289		352
CTC	0	0	0	0	0	0	0	0
DELCO(GM)	4	3	2	3	1	1		2
DICKSON(SIEMENS)								0
FAIRCHILD	2	3	2	3	5	7		5
FMC(SIEMENS)								0
GENERAL ELECTRIC	32	34	23	31	31	23		28
GENERAL INSTRUMENT	15	15	13	16	21	24		33
GENERAL SEMI	0	0	0	0	0	0		0
HEWLETT-PACKARD	0	0	0	0	0	0		0
INTERCIL	0	0	0	0	0	0		0
IR	19	25	26	27	34	38		41
ITT	15	19	15	18	18	19		22
MOTOROLA	40	41	38	45	57	68		78
NATIONAL SEMI	0	0	0	0	0	0		0
RAYTHEON								0
RCA	0	0	0	0	0	0		0
SILICONIX	0	0	0	0	0	0		0
SOLID STATE SCI	0	0	0	0	0	0		0
SOLITRON	0	0	4	4	5	6		9
SPRAGUE	0	0	0	0	0	0		0
TELEDYNE	0	0	0	0	0	0		0
TEXAS INSTRUMENTS	8	10	7	8	8	10		11
TRW	3	5	4	5	6	7		0
UNITRODE	9	12	11	13	16	18		25
VARO	29	21	24	33	36	37		41
WESTINGHOUSE	13	16	14	16	15	17		21
OTHERS	9	13	6	16	3	14		36
JAPANESE COMPANIES			148	107	150	179	233	213
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES			117	102	116	134	160	171
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD			0	0	0	0	0	0
MIL			0	0	0	0	0	0
OTHERS			0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-25

ZENER DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			139	100	121	129	175	123
U S COMPANIES	67	75	57	62	64	86	95	
CTC	0	0	0	0	0	0	0	0
DELCO (GM)	7	5	3	2	1	1	1	1
DICKSON (SIEMENS)								17
FAIRCHILD	0	1	1	1	2	1	1	1
FMC (SIEMENS)								0
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL SEMI	0	0	0	0	0	0	0	4
HEWLETT-PACKARD	0	1	1	1	0	0	0	0
INTERIL	0	0	0	0	0	0	0	0
IR	2	3	3	3	4	4	4	4
ITT	8	11	9	10	10	11	11	13
MOTOROLA	35	37	26	30	32	36	40	
NATIONAL SEMI	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
TELEDYNE	7	9	6	5	5	5	5	0
TEXAS INSTRUMENTS	3	3	4	4	4	4	4	4
TRW	0	0	0	0	0	0	0	0
UNITRODE	5	5	4	5	4	5	5	7
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	0	0	0	1	2	19	4	
JAPANESE COMPANIES			26	16	25	27	35	33
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES			38	27	34	38	54	55
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS ²								
THOMSON CSF								
OTHERS								
REST OF WORLD			0	0	0	0	0	0
MIL			0	0	0	0	0	0
OTHERS			0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²Siemens' 1979 revenues do not include Dickson, however, earlier Siemens' revenues do include Dickson.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-26

THYRISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			232	180	241	295	317	358
U S COMPANIES	111	118	96	124	147	148	162	
CTC	0	0	0	0	0	0	0	0
DELCO(GM)	0	0	0	0	0	0	0	0
DICKSON(SIEMENS)								0
FAIRCHILD	0	0	0	0	0	0	0	0
FNC(SIEMENS)								0
GENERAL ELECTRIC	27	26	19	29	30	36	41	
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL SEMI	0	0	0	0	0	0	0	0
HENLETT-PACKARD	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
IR	10	13	13	15	17	20	23	
ITT	0	0	0	0	0	0	0	0
MOTOROLA	16	17	13	18	21	22	25	
NATIONAL SEMI	0	0	0	0	0	0	0	0
RAYTHEON	2	3	2	3	3	0	0	0
RCA	13	17	17	21	24	27	30	
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCI	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	6	7	4	8	8	7	7	
TRW	0	0	0	0	0	0	0	0
UNITRODE	3	4	3	3	4	4	5	
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	14	20	15	22	25	29	36	
OTHERS	20	9	10	5	15	1	15	
JAPANESE COMPANIES			42	26	49	69	85	81
FUJITSU						0	0	0
HITACHI						6	10	10
MATSUSHITA						3	3	3
MITSUBISHI						21	19	17
NIPPON ELECTRIC						7	10	15
OKI								
SANYO							0	0
TOSHIBA						14	14	17
OTHERS						18	29	19
EUROPEAN COMPANIES			72	58	62	79	94	95
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD			0	0	0	0	0	0
MIL			0	0	0	0	0	0
OTHERS			0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-27

OTHER DISCRETE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET			124	76	113	131	156	185
U S COMPANIES	67	71	44	54	50	55	75	
CTC	0	0	0	0	1	2	2	
DELCO(GM)	0	0	0	0	0	0	0	
DICKSON(SIEMENS)								0
FAIRCHILD	1	2	2	2	2	0	0	
FMC(SIEMENS)								14
GENERAL ELECTRIC	7	8	5	5	5	10	11	
GENERAL INSTRUMENT	0	0	0	0	0	0	0	
GENERAL SEMI	0	0	0	0	0	0	6	
HEWLETT-PACKARD	5	4	3	5	12	15	20	
INTERFIL	0	0	0	0	0	0	0	
IR	0	0	0	0	0	0	0	
ITT	5	8	5	6	5	5	5	
MOTOROLA	17	15	3	4	3	3	8	
NATIONAL SEMI	0	1	1	1	0	0	0	
RAYTHEON	1	1	1	1	0	0	0	
RCA	4	4	5	5	3	3	3	
SILICONIX	0	0	0	0	0	0	0	
SOLID STATE SCI	0	0	0	0	0	0	0	
SOLITRON	0	0	0	0	0	0	0	
SPRAGUE	0	0	0	0	0	0	0	
TELEDYNE	0	0	0	0	0	0	0	
TEXAS INSTRUMENTS	6	7	7	7	7	6	6	
TRW	0	0	0	0	0	0	0	
UNITRODE	1	1	1	1	1	1	0	
VARO	0	0	0	0	0	0	0	
WESTINGHOUSE	0	0	0	0	0	0	0	
OTHERS	20	20	11	17	11	10	0	
JAPANESE COMPANIES			27	16	43	44	66	64
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	520	26	16	16	37	37	46	
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	
MIL	0	0	0	0	0	0	0	
OTHERS	0	0	0	0	0	0	0	

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-28

TOTAL OPTOELECTRONIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	107	166	195	225	288	309	419	595
U S COMPANIES	78	137	168	183	213	201	268	359
FAIRCHILD	5	10	13	20	25	16	16	26
GENERAL ELECTRIC	2	3	4	4	6	7	9	12
GENERAL INSTRUMENT			0	0	0	0	0	39
GENERAL SEMI								0
HEWLETT-PACKARD	9	19	24	30	38	40	54	65
IR		0	0	1	1	1	2	2
LITRONIX(SIEMENS)	14	21	19	17	16	15	16	31
MONSANTO ²	9	18	17	17	21	19	30	0
MOTOROLA	2	3	4	3	2	2	2	6
NATIONAL SEMI	7	11	15	22	15	15	18	25
RCA		0	0	0	1	1	8	8
SPECTRONICS	1	2	3	5	7	11	11	15
TEXAS INSTRUMENTS	12	28	42	43	60	57	66	76
OTHERS	17	22	27	21	21	17	34	54
JAPANESE COMPANIES	23	20	16	22	45	63	94	149
FUJITSU						0	0	0
HITACHI		1	1	1	2	6	10	11
MATSUSHITA		2	2	4	6	2	11	10
MITSUBISHI		0	0	0	1	2	0	0
NIPPON ELECTRIC		3	3	3	4	6	10	14
OKI								
SANYO							2	4
TOSHIBA		6	6	7	15	11	20	35
OTHERS		8	4	7	17	34	41	75
EUROPEAN COMPANIES	6	9	11	20	30	45	57	87
AEG-TELEFUNKEN							0	15
FERRANTI							0	0
PHILIPS							12	14
PLESSEY							0	0
SGS							0	0
SIEMENS							35	42
THOMSON CSF							0	0
OTHERS							10	16
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-29

LED LAMP MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	15	22	23	32	54	66	89	113
U S COMPANIES	11	17	19	24	29	30	37	49
FAIRCHILD	1	2	2	3	4	4	5	7
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	10
GENERAL SEMI								0
HEWLETT-PACKARD	1	2	3	4	5	6	8	9
IR	0	0	0	0	0	0	0	0
LITRONIX(SIEMENS)	1	2	3	4	3	3	2	4
MONSANTO ²	2	4	4	4	5	6	9	0
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMI	1	2	2	3	4	4	5	7
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	2	3	3	4	6	6	8	10
OTHERS	3	2	2	2	2	1	0	2
JAPANESE COMPANIES	2	3	2	3	17	25	37	46
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	2	2	5	8	11	15	18
ADG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-30

LED DISPLAY MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	55	104	120	128	151	144	193	265
U S COMPANIES	46	88	107	111	120	99	132	170
FAIRCHILD	3	6	7	13	16	9	10	15
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	13
GENERAL SEMI								0
HENLETT-PACKARD	6	13	16	20	26	26	33	41
IR	0	0	0	0	0	0	0	0
LITRONIX(SIEMENS)	13	18	14	12	11	11	12	21
MONSANTO ²	5	11	10	8	11	8	10	0
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMI	6	9	13	19	11	11	13	18
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	1	1	2	3	3	2
TEXAS INSTRUMENTS	5	18	28	24	30	28	32	37
OTHERS	8	13	18	14	13	3	19	23
JAPANESE COMPANIES	7	12	8	10	20	28	40	59
FUJITSU								
HITACHI								
MATSUSHITA								
mitsubishi								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	4	5	7	11	17	21	36
AGC-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

² In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-31

OPTICAL COUPLER MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	7	15	21	22	29	34	51	81
U S COMPANIES	6	12	17	17	24	26	37	60
FAIRCHILD	0	1	2	2	3	2	2	3
GENERAL ELECTRIC	0	1	2	3	5	7	9	12
GENERAL INSTRUMENT	0	0	0	0	0	0	0	6
GENERAL SEMI								0
HEWLETT-PACKARD	1	2	3	3	4	5	7	8
IR	0	0	0	0	0	0	0	0
LITRONIX(SIEMENS)	0	1	2	1	2	1	2	4
MONSANTO ²	2	3	3	5	5	5	7	0
MOTOROLA	0	0	0	0	0	0	0	3
NATIONAL SEMI	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	0	0	1	1	1	2
TEXAS INSTRUMENTS	1	2	3	3	4	4	6	8
OTHERS	2	2	2	0	0	1	3	12
JAPANESE COMPANIES	1	2	2	3	3	5	8	11
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	0	1	2	2	2	3	6	10
ADG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

Table B-32

OTHER OPTOELECTRONIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1972	1973	1974	1975	1976	1977	1978	1979
TOTAL MARKET	30	25	31	43	54	65	86	136
U S COMPANIES	15	20	25	31	40	46	62	80
FAIRCHILD	1	1	2	2	2	1	1	1
GENERAL ELECTRIC	2	2	2	1	1	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	8
GENERAL SEMI								0
HEWLETT-PACKARD	1	2	2	3	3	3	6	7
IR	0	0	0	1	1	1	2	2
LITRONIX(SIEMENS)	0	0	0	0	0	0	0	2
MONSANTO ²	0	0	0	0	0	0	4	0
MOTOROLA	2	3	4	3	2	2	2	3
NATIONAL SEMI	0	0	0	0	0	0	0	0
RCA	0	0	0	0	1	1	8	8
SPECTRONICS	1	2	2	4	4	7	7	11
TEXAS INSTRUMENTS	4	5	8	12	20	19	20	21
OTHERS	4	5	5	5	6	12	12	17
JAPANESE COMPANIES	13	3	4	6	5	5	9	33
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	2	2	6	9	14	15	23
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS								
SIEMENS								
THOMSON CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972 - 302.0; 1973 - 268.7; 1974 - 291.8; 1975 - 296.9; 1976 - 296.2; 1977 - 265.9; 1978 - 207.4; 1979 - 221.3.

²In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.

Appendix B—Market Share Estimates

An integral part of DATAQUEST's Semiconductor Industry Service data base is the analysis of semiconductor markets through estimation of market share by manufacturer. This analysis provides insights into semiconductor markets and reinforces estimates of consumption, production, and company revenues that were made using other data. Table B-1 gives market share estimates for the total worldwide merchant semiconductor market. Tables B-2, B-26, and B-36 further segment the semiconductor market into integrated circuits, discrete devices, and optoelectronic devices. Each of these categories is divided into a number of subgroups, and some subgroups are further segmented. In general, these product divisions are self-explanatory. The Bipolar Digital and MOS segments are divided both by function and by technology beginning with 1979. The difference between signal and power transistors or diodes is set at the 1-watt power-handling capability level. Special discrete semiconductor devices that are neither transistors, diodes, nor thyristors are categorized as "Other" and shown in Table B-35. An index of all tables is included for easy reference. Tables B-20 through B-25 are not included at this time; however, the space is maintained for future accommodation.

The semiconductor market is divided among U.S. companies, European companies, Japanese companies, and Rest-of-World (ROW) companies based on the location of their main offices. While almost all U.S. semiconductor companies are listed, only the leading European and Japanese companies are included.

Although only a limited number of companies are included in the tables, we keep information on more than 100 companies. When not shown explicitly, their production is included in "Others."

The totals given for U.S. companies reflect worldwide production. For example, Texas Instruments manufactures semiconductors in many parts of the world, and its entire production is included under the U.S. companies' market share section. In contrast, some, but not all, foreign-owned subsidiaries, such as Litronix (Siemens), are included in the U.S. totals and not in the total of the parent company location. A U.S. subsidiary to a foreign company is included in U.S. companies if it maintains its own identity, i.e., carries its own name rather than that of its parent company. A good example of this is Fairchild Semiconductor (Schlumberger). The total for U.S. companies, therefore, is not the same as for U.S. semiconductor consumption or U.S. factory shipments detailed in Tables A-2 and A-7 in Appendix A.

DEFINITIONS AND CONVENTIONS

DATAQUEST utilizes a common basis of companies for all its data tables. This basis includes all non-captive suppliers to the semiconductor market. It excludes captive suppliers that manufacture devices solely for the benefit of the parent company, such as Burroughs, IBM, NCR, and Western Electric, but includes companies that actively market semiconductor devices to industry as well as to

Appendix B—Market Share Estimates

other divisions of their own company. Both external shipments and internal consumption are included for these companies. Value of devices used internally is estimated at current market prices.

Regional Breakdown - Appendix A Definitions and Appendix B Definitions

The criteria used for placing semiconductor revenues in one of the four geographic regions are different in Appendix A, Tables A-1 to A-5; Appendix A, Tables A-6 to A-10; and Appendix B. Consumption, as used in Tables A-1 to A-5, is defined as the purchase of a semiconductor device or devices. This definition must be differentiated from actual use of the device in a final product. Devices that are inventoried at the user level are considered consumption, under our definition, and the values are assigned to the region to which the product was shipped.

The fabrication and assembly of semiconductor devices are often performed in several different locations. For the purposes of this data base, factory shipments, as the term is used in Tables A-6 to A-10, are defined geographically as occurring from that point where the device is tested and marked, irrespective of where the device is assembled or where initial wafer fabrication is performed. In general, factory shipments and production are equated, but devices inventoried at the manufacturer's level are not included in DATAQUEST's basis for factory shipments.

In Appendix B, value of shipments is assigned to the geographic region in which the home base of the company is located regardless of where the device is actually manufactured. For example, consider a device manufactured, tested, and marked at National Semiconductor's Greenock, Scotland plant and shipped to IBM in the United States. Those revenues appear in Table A-2, Estimated North American Semiconductor Consumption, because the part was shipped to IBM in the United States. The revenues appear again in Table A-9, Estimated European Semiconductor Factory Shipments, because Scotland is in Europe. Finally, because National Semiconductor is a U.S.-based company, the revenues appear under "U.S. Companies" in Appendix B.

Hybrid Circuits

Because of prior reporting methods used by the Electronic Industries Association (EIA) and the Japanese Ministry for International Trade and Industry (MITI), hybrid devices are included as a product segment of integrated circuits in the years prior to 1973. This segmentation is somewhat artificial because hybrid devices are primarily a special packaging arrangement. As a result, DATAQUEST has deleted this segment for the years beginning with 1973. However, hybrids are included in the Linear Table, B-22, for principal hybrid suppliers that do wafer fabrication. When the hybrid values are known, they are broken out in a footnote at the bottom of the table.

Appendix B—Market Share Estimates

Exchange Rate Conventions

Estimates of Japanese consumption or factory shipments use the exchange rate (yen/dollar) for the given year. Refer to the footnotes on the tables for the exchange rates used. In viewing the year-to-year Japanese market growth rate, one must take into consideration the different exchange rates in effect during the year. For the European market, the value of shipments is estimated directly in dollars.

DATA SOURCES

There is no official body in the United States or Europe—government organization, industry association, or trade publication—that maintains complete or near complete statistics on the semiconductor industry. In Japan, some statistics are kept by the MITI. It should be clear from the broad scope and detailed breakdown that Appendix B is a major effort. We believe that the estimates presented here are the most accurate and meaningful generally available today. The sources of the data presented in the tables are:

- o Unit sales or revenues (or both) published by major industry participants
- o Estimates presented by knowledgeable and reliable industry spokespersons
- o Government data or trade association data such as SIA, MITI, and EIA
- o Published product literature and price lists
- o Interviews with knowledgeable manufacturers, distributors, and users
- o Relevant projected world economic data

Most estimates have been reviewed by knowledgeable market research analysts from several of the major industry participants, and revisions were made if justified by the additional data that they provided. Thus, these estimates represent a consensus of the industry's own estimates.

CONSISTENCY

One of the key objectives in preparing these estimates is to achieve consistency among the various data elements that constitute the forecast and the past data base. The opportunity to check the numeric value of a directly obtained data element by deriving it indirectly from other data elements through one or more

Appendix B—Market Share Estimates

alternative means, has been of great assistance in assuring the accuracy and consistency of the estimates. Thus, the data in Appendix B are consistent with the market estimates in Appendix A and with the individual company revenue breakdowns presented in Volume III.

ACCURACY

The tables presented here represent estimates by DATAQUEST, which we believe are reasonably accurate. Accordingly, where we have no accurate estimate, one is not given. A blank space in a table indicates the unavailability of a reasonably accurate estimate, whereas a zero in a table represents an estimate.

NEED FOR CAREFUL INTERPRETATION

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, careful attention must be paid to the definitions and assumptions used here when interpreting the estimates presented in these tables. Various companies, government agencies, and trade associations may use slightly different definitions of product categories and regional groupings, or they may include different companies in their summaries. These differences should be kept in mind when making comparisons between these data and those provided by others.

Appendix B—Market Share Estimates

INDEX OF TABLES

<u>Product Segment</u>	<u>Table</u>
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital (Technology)	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
Bipolar Digital (Function) - Same as B-3	B-8
Memory	B-9
Logic	B-10
MOS (Technology)	B-11
PMOS	B-12
NMOS	B-13
CMOS	B-14
MOS (Function) - Same as B-11	B-15
Memory	B-16
Microprocessor	B-17
Logic	B-18
Linear	B-19
Amplifiers	B-20
Voltage Regulators	B-21
Data Conversion	B-22
Interface	B-23
Special Consumer	B-24
Other	B-25
Total Discrete	B-26
Transistor	B-27
Small Signal Transistor	B-28
Power Transistor	B-29
Diode	B-30
Small Signal Diode	B-31
Power Diode	B-32
Zener Diode	B-33
Thyristor	B-34
Other	B-35
Total Optoelectronics	B-36
LED Lamps	B-37
LED Displays	B-38
Optical Couplers	B-39
Other	B-40

Appendix B—Market Share Estimates

Table B-1

TOTAL SEMICONDUCTOR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	4798	5405	4373	5827	6846	8859	11116	14119
US COMPANIES	2830	3366	2796	3519	4079	5123	6880	8669
ADVANCED MICRO DEVICES	21	28	32	55	82	132	203	282
AMERICAN MICROSYSTEMS	56	74	58	59	68	71	96	117
ANALOG DEVICES					26	43	55	75
CHEMUR SEMICONDUCTOR							4	9
COMMODORE					8	8	15	19
COMMUNICATIONS TRANSISTOR					11	12	15	16
ELECTRONIC ARRAYS	16	18	15	17	14	12	16	20
FAIRCHILD	283	323	236	307	325	358	469	566
GENERAL ELECTRIC	106	114	83	107	109	113	129	137
GENERAL INSTRUMENT	30	63	57	106	117	125	202	244
GENERAL MOTORS	27	21	13	13	12	12	15	15
GTE MICROCIRCUITS					17	21	28	24
HARRIS	22	37	42	44	60	85	115	185
HEWLETT-PACKARD	24	29	34	43	52	69	85	95
HUGHES	0	11	13	17	23	17	14	21
INTEL	58	115	111	147	200	300	440	575
INTERMIL	24	49	46	59	61	67	92	106
INTERNATIONAL RECTIFIER	32	43	45	49	60	69	79	90
ITT	121	160	120	144	155	165	185	241
LITRONIX	22	21	23	19	15	16	31	34
MONOLITHIC MEMORIES	13	20	18	20	25	31	36	88
MONSANTO ³	18	17	17	21	19	30	0	0
MOSTEK ²	39	48	38	56	83	125	213	330
MOTOROLA ²	445	481	362	462	542	680	919	1100
NATIONAL SEMICONDUCTOR ²	153	210	215	256	297	405	580	770
PRECISION MONOLITHICS				7	12	15	21	32
RAYTHEON	35	42	30	32	33	37	42	44
RCA	141	183	148	174	206	240	276	322
ROCKWELL	40	52	60	50	47	52	70	75
SIGNETICS	98	121	82	125	175	214	265	384
SILICONIX	19	21	23	25	30	43	53	64
SOLID STATE SCIENTIFIC ⁴	10	17	8	17	16	25	26	33
SOLITRON	15	22	16	18	20	21	29	32
SPECTRONICS	2	3	5	7	11	11	15	17
SPRAGUE	5	20	14	20	23	33	43	49
STANDARD MICROSYSTEMS					8	10	14	17
SUPERTEX								9
SYNERTEK		0	1	5	19	33	45	60
TELEDYNE	36	45	30	25	22	21	20	24
TEXAS INSTRUMENTS ²	604	634	520	655	741	921	1212	1580
TRW	22	33	35	37	43	47	63	75
UNITRODE ²	24	29	25	29	33	42	69	87
VARO	29	21	24	33	36	37	41	45
WESTERN DIGITAL	9	13	7	5	6	6	12	25
WESTINGHOUSE	27	36	29	38	40	47	58	65
ZILOG				0	3	8	20	32
OTHERS	204	192	161	216	174	294	438	439

(Continued)

Appendix B—Market Share Estimates

Table B-1 (Continued)

TOTAL SEMICONDUCTOR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
JAPANESE COMPANIES	1255	1120	844	1428	1738	2484	2763	3725
FUJITSU					89	124	210	419
HITACHI	195	178	198	267	279	465	468	658
MATSUSHITA	164	138	108	177	192	254	237	300
MITSUBISHI	84	72	56	126	139	147	195	254
NIPPON ELECTRIC	198	200	211	314	369	518	579	769
OKI								
SANYO						120	146	180
TOSHIBA	155	167	134	236	263	401	442	629
OTHERS	459	365	137	308	407	455	486	516
EUROPEAN COMPANIES	690	881	729	868	1015	1234	1448	1690
AEG-TELEFUNKEN	48	55	48	55	87	111	170	196
FERRANTI					23	27	33	48
PHILIPS ²	246	340	275	325	355	431	505	558
PLESSEY					21	30	42	49
SGS-ATES	65	83	56	55	84	100	120	150
SIEMENS	119	144	151	215	250 ³	292	356	420
THOMSON-CSF	65	80	74	82	93	130	160	190
OTHERS	147	179	125	136	102	113	62	79
REST OF WORLD	23	38	4	12	14	18	25	35
MIL	20	32	4	0	0	0	0	0
OTHERS	3	6	0	12	14	18	25	35

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² Totals include the following estimated amounts of hybrid ICs: Motorola (1979, 1980) - \$15 million and \$18 million; NSC (1979, 1980)-\$40 million and \$46 million; TI (1979, 1980)-\$30 million and \$36 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980)-\$55 million and \$66 million.

³ In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

⁴ In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thompson CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-2

TOTAL INTEGRATED CIRCUIT MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	2046	2510	2120	2941	3687	5235	7126	9772
TOTAL MARKET								
US COMPANIES	1463	1880	1569	2068	2591	3449	4856	6545
ADVANCED MICRO DEVICES	21	28	32	55	82	132	203	282
AMERICAN MICROSYSTEMS	56	74	58	59	68	71	96	117
ANALOG DEVICES					26	43	55	75
CHERRY SEMICONDUCTOR							4	9
COMMODORE					8	8	15	19
ELECTRONIC ARRAYS	16	18	15	17	14	12	16	20
FAIRCHILD	186	212	144	204	226	253	353	461
GENERAL ELECTRIC	0	0	0	0	0	2	3	3
GENERAL INSTRUMENT	0	32	32	73	77	75	96	126
GTE MICROCIRCUITS					17	21	20	24
HARRIS	22	37	42	44	60	85	115	185
HUGHES	0	11	13	17	23	17	14	21
INTEL	58	115	111	147	200	300	440	575
INTERMIL	21	46	43	55	55	61	85	99
ITT	46	58	40	47	62	70	85	135
LITRONIX	1	2	6	3	0	0	0	0
MONOLITHIC MEMORIES	13	20	18	20	25	31	36	88
MOSTER	39	48	38	56	83	125	213	330
MOTOROLA ²	139	168	120	172	227	329	500	670
NATIONAL SEMICONDUCTOR ²	127	174	168	210	256	356	518	705
PRECISION MONOLITHICS				7	12	15	21	32
RAYTHEON	23	28	19	20	26	24	28	30
RCA	82	108	70	83	108	127	150	187
ROCKWELL	40	52	60	50	47	52	70	75
SIGMETICS	98	121	82	125	175	214	265	384
SILICONIX	8	9	14	14	17	30	34	46
SOLID STATE SCIENTIFIC	5	11	4	12	11	18	26	33
SOLITRON	4	6	6	5	5	5	6	6
SPRAGUE	0	14	10	14	17	27	38	44
STANDARD MICROSYSTEMS					8	10	14	17
SUPERTEX								6
SYNERTEX		0	1	5	19	33	45	60
TELEDYNE	12	16	11	9	7	9	11	15
TEXAS INSTRUMENTS ²	363	374	300	421	514	679	952	1305
TRW	2	2	8	6	9	10	18	28
UNITRODE ²	0	0	0	0	0	2	9	17
WESTERN DIGITAL	9	13	7	5	6	6	12	25
ZILOG				0	3	8	20	32
OTHERS	72	83	97	113	104	189	262	259
JAPANESE COMPANIES	399	382	343	605	748	1313	1651	2439
FUJITSU					60	91	175	380
HITACHI	68	74	83	120	127	259	284	410
MATSUSHITA	29	25	22	40	60	86	103	130
MITSUBISHI	32	26	25	50	54	70	126	174
NIPPON ELECTRIC	93	104	107	153	187	299	364	533
OKI								
SANYO						88	109	136
TOSHIBA	41	49	49	90	111	189	220	332
OTHERS	136	104	57	152	149	231	270	344
EUROPEAN COMPANIES	161	210	204	260	338	459	604	763
AEG-TELEFUNKEN	13	11	10	12	16	23	35	45
FERPANT					13	16	20	30
PHILIPS ²	45	60	75	100	111	165	215	253
PLCSSEY					15	23	34	41
SGS-ATES	22	23	23	25	49	59	74	95
SIEMENS				75	83	106	150	198
THOMSON-CSF	14	19	14	17	20	30	40	50
OTHERS	28	48	34	31	31	37	36	51
REST OF WORLD	23	38	4	8	10	14	15	25
MIL	20	32	4	0	0	0	0	0
OTHERS	3	6	0	8	10	14	15	25

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.3; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² Totals include the following estimated amounts of hybrid ICs: Motorola (1979, 1980) - \$15 million and \$18 million; NSC (1979, 1980)-\$40 million and \$46 million; TI (1979, 1980)-\$30 million and \$36 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980)-\$55 million and \$66 million.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-3

BIPOLAR DIGITAL MARKET SHARE ESTIMATES - TECHNOLOGY¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	890	944	663	865	1026	1315	1703	2450
US COMPANIES	741	777	524	680	806	1023	1380	1989
ADVANCED MICRO DEVICES	18	14	14	21	35	47	81	122
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	0	1	1	0	0
CERRY SEMICONDUCTOR	0	0	0	0	0	0	2	4
COMMODORE	0	0	0	0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	134	139	74	106	116	141	198	273
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	15	17	16	15	26	36	48	90
HUGHES	0	3	3	2	4	3	0	0
INTEL	17	15	12	15	15	17	21	27
INTERSIL	10	15	10	12	10	7	10	12
ITT	31	34	20	19	23	25	30	42
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	13	20	18	20	25	31	36	88
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	75	85	48	58	68	90	112	130
NATIONAL SEMICONDUCTOR	65	70	48	75	83	121	176	249
PRECISION MONOLITHICS	0	0	0	0	0	0	0	0
RAYTHEON	11	14	9	9	8	10	11	12
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	73	86	55	85	110	132	175	286
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	3	4	3	1	1	1	2	2
SPRAGUE	0	5	4	5	0	0	0	0
STANDARD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	1
SYNERTEK	0	0	0	0	0	0	0	0
TELEDYNE	6	9	5	4	3	4	4	4
TEXAS INSTRUMENTS	255	234	145	215	242	306	422	598
TRW	2	2	1	1	2	3	4	4
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG	0	0	0	0	0	0	0	0
OTHERS	13	11	39	17	34	48	48	45
JAPANESE COMPANIES	96	91	64	99	129	194	217	309
FUJITSU	0	0	0	0	34	47	54	81
HITACHI	15	19	18	18	21	38	45	73
MATSUSHITA	2	2	1	2	6	10	11	13
MITSUBISHI	11	11	7	19	12	15	20	29
NIPPON ELECTRIC	25	25	16	19	27	39	35	54
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	5	6	10
TOSHIBA	7	8	6	8	11	8	9	12
OTHERS	36	26	16	33	18	32	37	37
EUROPEAN COMPANIES	50	70	75	80	85	92	101	146
AEG-TELEFUNKEN	3	0	0	0	0	0	0	0
FERRANTI	0	0	0	0	3	4	5	9
PHILIPS	3	4	3	4	4	5	7	15
PLESSEY	0	0	0	0	5	8	12	14
SGS-ATES	2	4	2	4	6	6	10	14
SIEMENS	0	0	0	53	43	31	50	64
THOMSON-CSF	0	0	1	1	1	2	2	3
OTHERS	22	35	21	18	23	34	15	27
REST OF WORLD	3	6	0	6	6	6	5	6
MIL	0	0	0	0	0	0	0	0
OTHERS	3	6	0	6	6	6	5	6

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-263.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-4

TTL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	633	695	484	682	830	1041	1410	2117
TOTAL MARKET								
US COMPANIES	570	605	392	553	674	836	1173	1762
ADVANCED MICRO DEVICES	18	14	14	21	35	47	81	122
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES					1	1	0	0
CHERRY SEMICONDUCTOR								0
COMMODORE					0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	98	105	53	80	83	105	156	228
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	10	12	12	12	24	35	47	89
HUGHES	0	3	3	2	4	3	0	0
INTEL	17	15	12	15	15	17	21	27
INTERCIL	10	14	10	12	10	7	10	12
ITT	19	26	15	6	12	15	20	31
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	13	20	18	20	25	31	36	88
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	33	36	15	19	24	31	46	53
NATIONAL SEMICONDUCTOR	62	67	48	75	83	121	176	249
PRECISION MONOLITHICS				0	0	0	0	0
RAYTHEON	7	10	7	9	8	10	11	12
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	63	76	47	79	100	122	163	270
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	3	3	4	0	0	0	0
STANDARD MICROSYSTEMS					0	0	0	0
SUPERTEX								0
SYNERTEK		0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	218	202	120	187	228	286	400	575
TRW	2	2	1	1	2	3	4	4
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG	0	0	0	0	0	0	0	0
OTHERS	0	0	14	11	20	2	2	2
JAPANESE COMPANIES	31	40	38	64	86	129	153	229
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	32	50	54	59	64	70	79	120
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	6	6	6	5	6
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	6	6	6	5	6

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-5

DTL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	115	103	83	71	56	56	48	45
US COMPANIES	92	81	65	55	39	36	30	28
ADVANCED MICRO DEVICES	0	0	0	0	0	0	0	0
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES					0	0	0	0
CHERRY SEMICONDUCTOR								0
COMMODORE					0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	31	27	14	15	12	10	8	9
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT		0	0	0	0	0	0	0
GTE MICROCIRCUITS					0	0	0	0
HARRIS	5	5	4	3	2	1	1	1
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
ITT	12	8	5	4	2	1	1	2
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	13	10	10	13	9	9	9	7
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
PRECISION MONOLITHICS				0	0	0	0	0
RAYTHEON	4	4	2	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	9	8	6	4	4	4	3	4
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	2	1	1	0	0	0	0
STANDARD MICROSYSTEMS					0	0	0	0
SUPERTEX								0
SYNERTEK	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	11	13	15	15	10	9	7	5
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG				0	0	0	0	0
OTHERS	7	4	8	0	0	2	1	0
JAPANESE COMPANIES	14	12	8	6	7	9	7	4
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	9	10	10	10	10	11	11	13
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-266.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-6

ECL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	64	72	58	76	94	140	157	189
TOTAL MARKET								
US COMPANIES	43	50	34	39	55	82	102	119
ADVANCED MICRO DEVICES	0	0	0	0	0	0	0	0
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES					0	0	0	0
CERRY SEMICONDUCTOR								0
COMMODORE					0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	1	3	3	8	18	23	30	32
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	0	0	0	0	0	0	0	0
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	0	1	0	0	0	0	0	0
ITT	0	0	0	0	0	0	0	0
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	23	31	19	18	30	43	50	62
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
PRECISION MONOLITHICS				0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	1	2	2	2	4	6	9	12
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS					0	0	0	0
SUPERTEK								0
SYNERTEK		0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	17	12	10	5	8	8	10	10
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG				0	0	0	0	0
OTHERS	1	1	0	6	3	2	3	3
JAPANESE COMPANIES	14	14	15	28	30	49	46	60
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	7	8	9	9	9	9	9	10
ADG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-7

OTHER BIPOLAR DIGITAL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	78	74	38	36	46	78	88	99
TOTAL MARKET								
US COMPANIES	36	41	33	33	38	69	75	80
ADVANCED MICRO DEVICES	0	0	0	0	0	0	0	0
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES					0	0	0	0
CHERRY SEMICONDUCTOR						2	4	
COMMODORE					0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	4	4	4	3	3	3	4	4
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS					0	0	0	0
HARRIS	0	0	0	0	0	0	0	0
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
ITT	0	0	0	9	9	9	9	9
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	6	8	4	8	5	7	7	8
NATIONAL SEMICONDUCTOR	3	3	0	0	0	0	0	0
PRECISION MONOLITHICS				0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	0	0	0	0	2	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	3	4	3	1	1	1	2	2
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS					0	0	0	0
SUPERTEX								1
SYNERTEX		0	0	0	0	0	0	0
TELEDYNE	6	9	5	4	3	4	4	4
TEXAS INSTRUMENTS	9	7	0	8	4	3	5	8
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG				0	0	0	0	0
OTHERS	5	6	17	0	11	42	42	40
JAPANESE COMPANIES	37	25	3	1	6	7	11	16
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	2	2	2	2	2	2	3
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	3	6	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	3	6	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-286.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-8

BIPOLAR DIGITAL MARKET SHARE ESTIMATES - FUNCTION¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	890	944	663	865	1026	1315	1703	2450
US COMPANIES	741	777	524	680	806	1023	1380	1989
ADVANCED MICRO DEVICES	18	14	14	21	35	47	81	122
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	0	1	1	0	0
CHERRY SEMICONDUCTOR	0	0	0	0	0	0	2	4
COMMODORE	0	0	0	0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	134	139	74	106	116	141	198	273
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	15	17	16	15	26	36	48	90
BUGHES	0	3	3	2	4	3	0	0
INTEL	17	15	12	15	15	17	21	27
INTERCIL	10	15	10	12	10	7	10	12
ITT	31	34	20	19	23	25	30	42
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	13	20	18	20	25	31	36	88
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	75	85	48	58	68	90	112	130
NATIONAL SEMICONDUCTOR	65	70	48	75	83	121	176	249
PRECISION MONOLITHICS	0	0	0	0	0	0	0	0
RAYTHEON	11	14	9	9	8	10	11	12
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	73	86	55	85	110	132	175	286
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	3	4	3	1	1	1	2	2
SPRAGUE	0	5	4	5	0	0	0	0
STANDARD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPRETEX	0	0	0	0	0	0	0	1
SYNERTEK	0	0	0	0	0	0	0	0
TELEDYNE	6	9	5	4	3	4	4	4
TEXAS INSTRUMENTS	255	234	145	215	242	306	422	598
TRW	2	2	1	1	2	3	4	4
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG	0	0	0	0	0	0	0	0
OTHERS	13	11	39	17	34	48	48	45
JAPANESE COMPANIES	96	91	64	99	129	194	217	309
FUJITSU	0	0	0	0	34	47	54	81
HITACHI	15	19	18	18	21	38	45	73
MATSUSHITA	2	2	1	2	6	10	11	13
MITSUBISHI	11	11	7	19	12	15	20	29
NIHON ELECTRIC	25	25	16	19	27	39	35	54
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	5	6	10
TOSEIBA	7	8	6	8	11	8	9	12
OTHERS	36	26	16	33	18	32	37	37
EUROPEAN COMPANIES	50	70	75	80	85	92	101	146
AEG-TELEFUNKEN	3	0	0	0	0	0	0	0
FERRANTI	0	0	0	0	3	4	5	9
PHILIPS	3	4	3	4	4	5	7	15
PLESSEY	0	0	0	0	5	8	12	14
SGS-ATES	2	4	2	4	6	8	10	14
SIEMENS	20	27	48	53	43	31	50	64
THOMSON-CSF	0	0	1	1	1	2	2	3
OTHERS	22	35	21	18	23	34	15	27
REST OF WORLD	3	6	0	6	6	6	5	6
NIL	0	0	0	0	0	0	0	0
OTHERS	3	6	0	6	6	6	5	6

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-9

BIPOLAR DIGITAL MEMORY MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
TOTAL MARKET	327	553
US COMPANIES	273	478
ADVANCED MICRO DEVICES	21	40
AMERICAN MICROSYSTEMS	0	0
ANALOG DEVICES	0	0
CHERRY SEMICONDUCTOR	0	0
COMMODORE	0	0
ELECTRONIC ARRAYS	0	0
FAIRCHILD	62	73
GENERAL ELECTRIC	0	0
GENERAL INSTRUMENT	0	0
GTE MICROCIRCUITS	0	0
HARRIS	33	60
HUGHES	0	0
INTEL	21	27
INTERMIL	0	0
ITT	0	0
LITRONIX	0	0
MONOLITHIC MEMORIES	30	67
MOSTEK	0	0
MOTOROLA	16	28
NATIONAL SEMICONDUCTOR	19	28
PRECISION MONOLITHICS	0	0
RAYTHEON	2	6
RCA	0	0
ROCKWELL	0	0
SIGNETICS	51	107
SILICONIX	0	0
SOLID STATE SCIENTIFIC	0	0
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	0	0
SUPERTEX	0	1
SYNERTEX	0	0
TELEDYNE	0	0
TEXAS INSTRUMENTS	14	32
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	0	0
ZILLOG	0	0
OTHERS	4	9
JAPANESE COMPANIES	51	70
FUJITSU	17	26
HITACHI	11	16
MATSUSHITA	0	0
MITSUBISHI	0	0
NIPPON ELECTRIC	13	18
OKI	0	0
SANYO	4	8
TOSHIBA	0	0
OTHERS	6	2
EUROPEAN COMPANIES	3	5
AEG-TELEFUNKEN	0	0
FERRENTI	0	0
PHILIPS	0	0
PLESSEY	0	1
SGS-ATES	0	0
SIEMENS	2	2
THOMSON-CSF	0	0
OTHERS	1	2
REST OF WORLD	0	0
MIL	0	0
OTHERS	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-10

BIPOLAR DIGITAL LOGIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
	1376	1897
TOTAL MARKET		
US COMPANIES	1107	1511
ADVANCED MICRO DEVICES	60	82
AMERICAN MICROSYSTEMS	0	0
ANALOG DEVICES	0	0
CHERRY SEMICONDUCTOR	4	5
COMMODORE	0	0
ELECTRONIC ARRAYS	0	0
FAIRCHILD	136	200
GENERAL ELECTRIC	0	0
GENERAL INSTRUMENT	0	0
GTE MICROCIRCUITS	0	0
HARRIS	15	30
HUGHES	0	0
INTEL	0	0
INTERSIL	10	12
ITT	30	42
LITRONIX	0	0
MONOLITHIC MEMORIES	6	21
MOSTEK	0	0
MOTOROLA	96	102
NATIONAL SEMICONDUCTOR	157	221
PRECISION MONOLITHICS	0	0
RAYTHEON	9	6
RCA	0	0
ROCKWELL	0	0
SIGNETICS	124	179
SILICONIX	0	0
SOLID STATE SCIENTIFIC	0	0
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	0	0
SUPERTEX	0	0
SYNERTEK	0	0
TELEDYNE	4	4
TEXAS INSTRUMENTS	408	566
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	0	0
ZILOG	0	0
OTHERS	48	41
JAPANESE COMPANIES	166	239
FUJITSU	37	55
HITACHI	34	57
MATSUSHITA	11	13
MITSUBISHI	20	29
NIPPON ELECTRIC	22	36
OKI	0	0
SANYO	2	2
TOSHIBA	9	12
OTHERS	31	35
EUROPEAN COMPANIES	98	141
AEG-TELEFUNKEN	0	0
FERRANTI	5	9
PHILIPS	7	15
PLESSEY	12	13
SGS-ATES	0	0
SIEMENS	48	62
THOMSON-CSF	2	3
OTHERS	24	39
REST OF WORLD	5	6
MIL	0	0
OTHERS	5	6

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-11

MOS MARKET SHARE ESTIMATES - TECHNOLOGY¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	591	890	847	1239	1564	2369	3480	4921
US COMPANIES	412	687	656	945	1203	1640	2468	3343
ADVANCED MICRO DEVICES	3	8	12	25	37	71	104	139
AMERICAN MICROSYSTEMS	56	74	58	59	68	71	96	117
ANALOG DEVICES					4	12	15	18
CHERRY SEMICONDUCTOR							0	0
COMMODORE					8	8	15	19
ELECTRONIC ARRAYS	16	18	15	17	14	12	16	20
FAIRCHILD	12	20	22	35	58	52	77	105
GENERAL ELECTRIC	0	0	0	0	0	2	3	3
GENERAL INSTRUMENT	0	29	29	68	72	68	90	120
GTE MICROCIRCUITS					17	21	28	24
HARRIS	5	7	12	16	12	18	30	61
HUGHES	0	8	10	15	19	14	14	21
INTEL	41	100	99	132	185	283	419	548
INTERISIL	5	23	26	36	33	35	45	53
ITT	1	3	2	5	12	15	23	43
LITRONIX	1	2	6	3	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	39	48	38	56	83	125	213	330
MOTOROLA	17	23	24	55	92	143	265	405
NATIONAL SEMICONDUCTOR	21	40	50	67	80	110	167	240
PRECISION MONOLITHICS				0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	35	58	29	45	61	69	84	115
ROCKWELL	40	52	60	50	47	52	70	75
SIGNETICS	7	11	10	12	25	32	35	40
SILICONIX	4	5	7	6	8	10	10	19
SOLID STATE SCIENTIFIC	5	11	4	12	11	18	26	33
SOLITRON	1	2	1	2	2	2	2	2
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS					8	10	14	17
SUPERTEX								5
SYNERTEX		0	1	5	19	33	45	60
TELEDYNE	0	0	1	2	2	3	5	9
TEXAS INSTRUMENTS	65	88	100	135	180	238	360	502
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	9	13	7	5	6	6	12	25
ZILOG				0	3	8	20	32
OTHERS	29	44	33	82	37	99	165	143
JAPANESE COMPANIES	140	144	159	257	299	605	832	1322
FUJITSU	0	0	0	0	21	38	113	287
HITACHI	35	38	43	63	62	139	147	213
MATSUMITA	5	4	5	7	10	21	35	57
MITSUBISHI	12	6	11	19	24	25	69	96
NIPPON ELECTRIC	37	42	54	74	98	183	231	348
OKI								
SANYO						13	16	21
TOSHIBA	15	20	24	35	41	88	135	219
OTHERS	36	34	22	59	43	98	86	81
EUROPEAN COMPANIES	19	27	28	35	60	116	170	240
AEG-TELEFUNKEN	6	6	6	5	6	7	10	14
FERRANTI					2	2	4	6
PHILIPS					5	30	48	80
PLESSEY					2	3	5	6
SGS-ATES	8	8	8	10	14	18	22	29
SIEMENS	0	0	0	10	25	50	63	86
THOMSON-CSF	0	0	1	2	4	5	0	0
OTHERS	5	13	13	8	2	1	16	19
REST OF WORLD	20	32	4	2	2	8	10	16
MIL	20	32	4	0	0	0	0	0
OTHERS	0	0	0	2	2	8	10	16

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-12

PMOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
TOTAL MARKET	517	518
US COMPANIES	351	367
ADVANCED MICRO DEVICES	0	0
AMERICAN MICROSYSTEMS	38	35
ANALOG DEVICES	0	0
CHERRY SEMICONDUCTOR	0	0
COMMODORE	0	0
ELECTRONIC ARRAYS	0	0
FAIRCHILD	15	18
GENERAL ELECTRIC	0	0
GENERAL INSTRUMENT	30	35
GTE MICROCIRCUITS	0	0
HARRIS	0	0
HUGHES	1	1
INTEL	0	0
INTERSIL	0	0
ITT	4	4
LITRONIX	0	0
MONOLITHIC MEMORIES	0	0
MOSTEK	10	10
MOTOROLA	0	0
NATIONAL SEMICONDUCTOR	35	45
PRECISION MONOLITHICS	0	0
RAYTHEON	0	0
RCA	4	5
ROCKWELL	38	40
SIGNETICS	10	12
SILICONIX	0	0
SOLID STATE SCIENTIFIC	2	4
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	0	0
SUPERTEX	0	0
SYNERTEK	0	0
TELEDYNE	0	0
TEXAS INSTRUMENTS	110	120
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	2	0
ZILOG	0	0
OTHERS	52	38
JAPANESE COMPANIES	133	120
FUJITSU		
HITACHI		
MATSUSHITA		
MITSUBISHI		
NIPPON ELECTRIC		
OKI		
SANYO		
TOSHIBA		
OTHERS		
EUROPEAN COMPANIES	30	28
AEG-TELEFUNKEN		
FERRANTI		
PHILIPS		
PLESSEY		
SGS-ATES		
SIEMENS		
THOMSON-CSF		
OTHERS		
REST OF WORLD	3	3
NIL	0	0
OTHERS	3	3

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-13

NMOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
TOTAL MARKET	2346	3455
US COMPANIES	1682	2351
ADVANCED MICRO DEVICES	104	139
AMERICAN MICROSYSTEMS	25	44
ANALOG DEVICES	0	0
CHERRY SEMICONDUCTOR	0	0
COMMODORE	15	19
ELECTRONIC ARRAYS	16	20
FAIRCHILD	45	55
GENERAL ELECTRIC	3	3
GENERAL INSTRUMENT	60	85
GTE MICROCIRCUITS	28	24
HARRIS	0	0
HUGHES	0	0
INTEL	418	545
INTERSIL	17	24
ITT	17	36
LITRONIX	0	0
MONOLITHIC MEMORIES	0	0
MOSTEK	194	307
MOTOROLA	160	240
NATIONAL SEMICONDUCTOR	75	118
PRECISION MONOLITHICS	0	0
RAYTHEON	0	0
RCA	3	4
ROCKWELL	32	35
SIGNETICS	25	28
SILICONIX	10	19
SOLID STATE SCIENTIFIC	2	5
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	10	12
SUPERTEX	0	1
SYNERTEX	45	60
TELEDYNE	5	9
TEXAS INSTRUMENTS	242	374
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	10	25
ZILOG	20	32
OTHERS	101	88
JAPANESE COMPANIES	539	922
FUJITSU		
HITACHI		
MATSUSHITA		
MITSUBISHI		
NIPPON ELECTRIC		
OKI		
SANYO		
TOSHIBA		
OTHERS		
EUROPEAN COMPANIES	125	182
AEG-TELEFUNKEN		
FERRANTI		
PHILIPS		
PLESSEY		
SGS-ATES		
SIEMENS		
THOMSON-CSF		
OTHERS		
REST OF WORLD	0	0
MIL	0	0
OTHERS	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-286.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-14

CMOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
	<u>617</u>	<u>948</u>
TOTAL MARKET		
US COMPANIES	435	625
ADVANCED MICRO DEVICES	0	0
AMERICAN MICROSYSTEMS	33	38
ANALOG DEVICES	15	18
CHERRY SEMICONDUCTOR	0	0
COMMODORE	0	0
ELECTRONIC ARRAYS	0	0
FAIRCHILD	17	32
GENERAL ELECTRIC	0	0
GENERAL INSTRUMENT	0	0
GTE MICROCIRCUITS	0	0
HARRIS	30	61
HUGHES	13	20
INTEL	1	3
INTERSIL	28	29
ITT	2	3
LITRONIX	0	0
MONOLITHIC MEMORIES	0	0
MOSTEK	9	13
MOTOROLA	105	165
NATIONAL SEMICONDUCTOR	57	77
PRECISION MONOLITHICS	0	0
RAYTHEON	0	0
RCA	77	106
ROCKWELL	0	0
SIGNETICS	0	0
SILICONIX	0	0
SOLID STATE SCIENTIFIC	22	24
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	4	5
SUPERTEX	0	4
SYNERTEK	0	0
TELEDYNE	0	0
TEXAS INSTRUMENTS	8	8
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	0	0
ZILOG	0	0
OTHERS	14	19
JAPANESE COMPANIES	160	280
FUJITSU		
HITACHI		
MATSUSHITA		
MITSUBISHI		
NIPPON ELECTRIC		
OKI		
SANYO		
TOSHIBA		
OTHERS		
EUROPEAN COMPANIES	15	30
AEG-TELEFUNKEN		
FERRANTI		
PHILIPS		
PLESSEY		
SGS-ATES		
SIEMENS		
THOMSON-CSF		
OTHERS		
REST OF WORLD	7	13
MIL	0	0
OTHERS	7	13

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-15

MOS MARKET SHARE ESTIMATES - FUNCTION¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	591	890	847	1239	1564	2369	3480	4921
US COMPANIES	412	687	656	945	1203	1640	2468	3343
ADVANCED MICRO DEVICES	3	8	12	25	37	71	104	139
AMERICAN MICROSYSTEMS	56	74	58	59	68	71	96	117
ANALOG DEVICES					4	12	15	18
CHERY SEMICONDUCTOR							0	0
COMMODORE					8	8	15	19
ELECTRONIC ARRAYS	16	18	15	17	14	12	16	20
FAIRCHILD	12	20	22	35	58	52	77	105
GENERAL ELECTRIC	0	0	0	0	0	2	3	3
GENERAL INSTRUMENT	0	29	29	68	72	68	90	120
GTE MICROCIRCUITS					17	21	28	24
HARRIS	5	7	12	16	12	18	30	61
HUGHES	0	8	10	15	19	14	14	21
INTEL	41	100	99	132	185	283	419	548
INTERCIL	5	23	26	36	33	35	45	53
ITT	1	3	2	5	12	15	23	43
LITRONIX	1	2	6	3	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	39	48	38	56	83	125	213	330
MOTOROLA	17	23	24	55	92	143	265	405
NATIONAL SEMICONDUCTOR	21	40	50	67	80	110	167	240
PRECISION MONOLITHICS				0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	35	56	29	45	61	69	84	115
ROCKWELL	40	52	60	50	47	52	70	75
SIGNETICS	7	11	10	12	25	32	35	40
SILICONIX	4	5	7	6	8	10	10	19
SOLID STATE SCIENTIFIC	5	11	4	12	11	18	26	33
SOLITRON	1	2	1	2	2	2	2	2
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS					8	10	14	17
SUPERTEX								5
SYNERTEK		0	1	5	19	33	45	60
TELEDYNE	0	0	1	2	2	3	5	9
TEXAS INSTRUMENTS	65	88	100	135	180	238	360	502
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	9	13	7	5	6	6	12	25
ZILOG				0	3	8	20	32
OTHERS	29	44	33	82	37	99	165	143
JAPANESE COMPANIES	140	144	159	257	299	605	832	1322
FUJITSU	0	0	0	0	21	38	113	287
HITACHI	35	38	43	63	62	139	147	213
MATSUSHITA	5	4	5	7	10	21	35	57
MITSUBISHI	12	6	11	19	24	25	69	96
NIIPPON ELECTRIC	37	42	54	74	98	183	231	348
OKI								
SANYO						13	16	21
TOSHIBA	15	20	24	35	41	88	135	219
OTHERS	36	34	22	59	43	98	86	81
EUROPEAN COMPANIES	19	27	28	35	60	116	170	240
AEG-TELEFUNKEN	6	6	6	5	6	7	10	14
FERRANTI					2	2	4	6
PHILIPS	0	0	0	0	5	30	48	80
PLESSEY					2	3	5	6
SGS-ATES	8	8	8	10	14	18	22	29
SIEMENS	0	0	0	10	25	50	65	86
THOMSON-CSF	0	0	1	2	4	5	0	0
OTHERS	5	13	13	8	2	1	16	19
REST OF WORLD	20	32	4	2	2	8	10	16
MIL	20	32	4	0	0	0	0	0
OTHERS	0	0	0	2	2	8	10	16

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-16

MOS MEMORY MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
	1705	2514
TOTAL MARKET		
US COMPANIES	1279	1790
ADVANCED MICRO DEVICES	79	107
AMERICAN MICROSYSTEMS	3	8
ANALOG DEVICES	0	0
CHERRY SEMICONDUCTOR	0	0
COMMODORE	5	8
ELECTRONIC ARRAYS	16	20
FAIRCHILD	29	41
GENERAL ELECTRIC	0	0
GENERAL INSTRUMENT	35	47
GTE MICROCIRCUITS	28	24
HARRIS	10	16
HUGHES	2	3
INTEL	261	308
INTERCIL	26	30
ITT	21	37
LITRONIX	0	0
MONOLITHIC MEMORIES	0	0
MOSTEK	167	259
MOTOROLA	100	155
NATIONAL SEMICONDUCTOR	114	178
PRECISION MONOLITHICS	0	0
RAYTHEON	0	0
RCA	16	25
ROCKWELL	35	37
SIGNETICS	20	22
SILICONIX	0	0
SOLID STATE SCIENTIFIC	1	3
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	2	3
SUPERTEX	0	2
SYNERTEK	26	35
TELEDYNE	0	0
TEXAS INSTRUMENTS	240	330
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	0	0
ZILOG	2	1
OTHERS	41	91
JAPANESE COMPANIES	404	685
FUJITSU	85	231
HITACHI	117	149
MATSUSHITA	2	4
MINITAB	10	20
NIPPON ELECTRIC	110	180
OKI	0	0
SANYO	3	4
TOSHIBA	50	75
OTHERS	27	22
EUROPEAN COMPANIES	22	39
AEG-TELEFUNKEN	0	0
FERRANTI	0	0
PHILIPS	1	4
PLESSEY	0	0
SGS-ATES	3	7
SIEMENS	7	15
THOMSON-CSF	0	0
OTHERS	11	13
REST OF WORLD	0	0
MIL	0	0
OTHERS	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-266.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-17

MOS MICROPROCESSOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
	<u>543</u>	<u>799</u>
TOTAL MARKET		
US COMPANIES	455	634
ADVANCED MICRO DEVICES	25	32
AMERICAN MICROSYSTEMS	7	8
ANALOG DEVICES	0	0
CHERRY SEMICONDUCTOR	0	0
COMMODORE	10	11
ELECTRONIC ARRAYS	0	0
FAIRCHILD	20	28
GENERAL ELECTRIC	0	0
GENERAL INSTRUMENT	15	25
GTE MICROCIRCUITS	0	0
HARRIS	1	2
HUGHES	1	1
INTEL	123	180
INTERCIL	3	5
ITT	0	1
LITRONIX	0	0
MONOLITHIC MEMORIES	0	0
MOSTEK	26	41
MOTOROLA	50	75
NATIONAL SEMICONDUCTOR	27	32
PRECISION MONOLITHICS	0	0
RAYTHEON	0	0
RCA	14	21
ROCKWELL	10	12
SIGNETICS	7	8
SILICONIX	0	0
SOLID STATE SCIENTIFIC	0	0
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	4	5
SUPERTEX	0	0
SYNERTEX	8	10
TELEDYNE	0	0
TEXAS INSTRUMENTS	80	95
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	3	5
ZILOG	18	31
OTHERS	3	6
JAPANESE COMPANIES	83	150
FUJITSU	3	6
HITACHI	15	39
MATSUSHITA	14	27
MITSUBISHI	0	0
NIPPON ELECTRIC	50	75
OKI	0	0
SANYO	0	0
TOSHIBA	0	0
OTHERS	1	1
EUROPEAN COMPANIES	5	13
AEG-TELEFUNKEN	0	0
FERRANTI	0	0
PHILIPS	1	4
PLESSEY	0	0
SGS-ATES	1	3
SIEMENS	2	5
THOMSON-CSF	0	0
OTHERS	1	1
REST OF WORLD	0	2
MIL	0	0
OTHERS	0	2

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-18

MOS LOGIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980
	1232	1608
TOTAL MARKET		
US COMPANIES	734	919
ADVANCED MICRO DEVICES	0	0
AMERICAN MICROSYSTEMS	86	101
ANALOG DEVICES	15	18
CHERRY SEMICONDUCTOR	0	0
COMMODORE	0	0
ELECTRONIC ARRAYS	0	0
FAIRCHILD	28	36
GENERAL ELECTRIC	3	3
GENERAL INSTRUMENT	40	48
GTE MICROCIRCUITS	0	0
HARRIS	19	43
HUGHES	11	17
INTEL	35	60
INTERMIL	16	19
ITT	2	5
LITRONIX	0	0
MONOLITHIC MEMORIES	0	0
MOSTEK	20	30
MOTOROLA	115	175
NATIONAL SEMICONDUCTOR	26	30
PRECISION MONOLITHICS	0	0
RAYTHEON	0	0
RCA	54	69
ROCKWELL	25	26
SIGNETICS	8	10
SILICONIX	10	19
SOLID STATE SCIENTIFIC	25	30
SOLITRON	0	0
SPRAGUE	0	0
STANDARD MICROSYSTEMS	8	9
SUPRETEX	0	3
SYNERTEX	11	15
TELEDYNE	5	9
TEXAS INSTRUMENTS	40	77
TRW	0	0
UNITRODE	0	0
WESTERN DIGITAL	9	20
ZILLOG	0	0
OTHERS	123	47
JAPANESE COMPANIES	345	487
FUJITSU	25	48
HITACHI	15	25
MATSUSHITA	19	26
MITSUBISHI	59	76
NIPPON ELECTRIC	71	93
OKI	0	0
SANYO	13	17
TOSHIBA	85	144
OTHERS	58	58
EUROPEAN COMPANIES	143	198
AEG-TELEFUNKEN	10	14
FERRANTI	4	6
PHILIPS	46	72
PLESSEY	5	6
SGS-ATES	18	19
SIEMENS	56	66
THOMSON-CSF	0	0
OTHERS	4	5
REST OF WORLD	10	14
MIL	0	0
OTHERS	10	14

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-266.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-19

LINEAR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	565	676	610	837	1097	1551	1943	2401
US COMPANIES	310	416	389	443	582	786	1008	1213
ADVANCED MICRO DEVICES	0	6	6	9	10	14	18	21
AMERICAN MICROSYSTEMS	0	0	0				0	0
ANALOG DEVICES					21	30	40	57
CHERRY SEMICONDUCTOR					0	0	2	5
COMMODORE				0	0	0	0	0
ELECTRONIC ARRAYS				0	0	0	0	0
FAIRCHILD	40	53	48	63	52	60	78	83
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	3	3	5	5	7	6	6
GTE MICROCIRCUITS					0	0	0	0
HARRIS	2	13	14	13	22	31	37	34
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	6	8	7	7	12	19	30	34
ITT	14	21	18	23	27	30	32	50
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA ²	47	60	48	59	67	96	123	135
NATIONAL SEMICONDUCTOR ²	41	64	70	68	93	125	175	216
PRECISION MONOLITHICS				7	12	15	21	32
RAYTHEON	12	14	10	11	12	14	17	18
RCA	47	50	41	38	47	58	66	72
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	18	24	17	28	40	50	55	58
SILICONIX	4	4	7	8	9	20	24	27
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	2	2	2	2	2	2
SPRAGUE	0	9	6	9	17	27	38	44
STANDARD MICROSYSTEMS					0	0	0	0
SUPERTEX								
SYNERTEX		0	0	0	0	0	0	0
TELEDYNE	6	7	5	3	2	2	2	2
TEXAS INSTRUMENTS ²	43	52	55	71	92	135	170	205
TRW	0	0	7	5	7	7	14	24
UNITRODE ²	0	0	0	0	0	2	9	17
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG				0	0	0	0	0
OTHERS	30	28	25	14	33	42	49	71
JAPANESE COMPANIES	163	147	120	249	320	514	602	808
FUJITSU					5	6	8	12
HITACHI	18	17	22	39	44	82	92	124
MATSUSHITA	22	19	16	31	44	55	57	60
MITSUBISHI	9	9	7	12	18	30	37	49
NISSAN ELECTRIC	31	37	37	60	62	77	98	131
OKI						70	87	105
SANYO						93	76	101
TOSHIBA	19	21	19	47	59	101	147	226
OTHERS	64	44	19	60	88			
EUROPEAN COMPANIES	92	113	101	145	193	251	333	377
AEG-TELEFUNKEN	4	5	4	7	10	16	25	31
FERRANTI					8	10	11	15
PHILIPS ²	42	56	72	96	102	130	160	158
PLESSEY					8	12	17	21
SGS-ATES	12	11	13	11	29	33	42	52
SIEMENS				12	15	25	35	48
THOMSON-CSF	14	19	12	14	15	23	38	47
OTHERS	1	0	0	5	6	2	5	5
REST OF WORLD	0	0	0	0	2	0	0	3
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	2	0	0	3

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-281.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² Totals include the following estimated amounts of hybrid ICs: Motorola (1979, 1980) - \$15 million and \$18 million; NSC (1979, 1980) - \$40 million and \$46 million; TI (1979, 1980) - \$30 million and \$36 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980) - \$55 million and \$66 million.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-26

TOTAL DISCRETE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	2586	2700	2028	2598	2850	3205	3395	3648
TOTAL MARKET								
US COMPANIES	1230	1318	1044	1238	1287	1406	1665	1731
COMMUNICATIONS TRANSISTOR					11	12	15	16
FAIRCHILD	87	98	72	78	83	87	90	81
GENERAL ELECTRIC	103	110	79	101	102	102	114	120
GENERAL INSTRUMENT	30	31	25	33	40	50	67	74
GENERAL MOTORS	27	21	13	13	12	12	15	15
HEWLETT-PACKARD	5	5	4	5	12	15	20	24
INTERSIL	3	3	3	4	6	6	7	7
INTERNATIONAL RECTIFIER	12	43	44	48	59	67	77	88
ITT	75	102	80	97	93	95	100	106
MOTOROLA	303	309	239	288	313	349	413	422
NATIONAL SEMICONDUCTOR	15	21	25	31	26	31	37	39
RAYTHEON	12	14	11	12	13	13	14	14
RCA	59	75	78	90	97	105	118	127
SILICONIX	11	12	9	11	13	13	19	18
SOLID STATE SCIENTIFIC ²	5	6	4	5	5	7	0	0
SOLITRON	11	16	10	13	15	16	23	26
SPRAGUE	5	6	4	6	6	6	5	5
SUPRETEX		0	0	0	0	0	0	3
TELEDYNE	24	29	19	16	15	12	9	9
TEXAS INSTRUMENTS	213	218	177	174	170	176	184	191
TRW	20	31	27	31	34	37	32	30
UNITRODE	24	29	25	29	33	40	60	70
VARO	29	21	24	33	36	37	41	45
WESTINGHOUSE	27	36	29	38	40	47	58	65
OTHERS	110	82	43	82	53	71	135	136
JAPANESE COMPANIES	836	722	479	778	927	1077	963	1077
FUJITSU					29	33	35	39
HITACHI	126	103	114	145	144	196	173	228
MATSUSHITA	133	111	82	131	130	157	124	152
MITSUBISHI	52	46	31	75	83	77	69	80
NIPPON ELECTRIC	102	93	101	157	176	209	201	213
OKI								
SANYO						32	37	44
TOSHIBA	108	112	78	131	141	192	187	241
OTHERS	315	257	73	139	224	181	137	80
EUROPEAN COMPANIES	520	660	505	578	632	718	757	830
AEG-TELEFUNKEN	35	44	38	43	71	83	125	135
FERRANTI					9	11	13	16
PHILIPS	201	280	200	220	234	246	266	278
PLESSEY					3	3	4	4
SGS-ATES	43	60	33	30	35	41	46	55
SIEMENS	80	95	96	120	135	151	164	172
THOMSON-CSF	51	61	60	65	73	100	120	140
OTHERS	110	120	78	100	72	83	19	28
REST OF WORLD	0	0	0	4	4	4	10	10
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	4	4	4	10	10

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-266.7; 1974-291.8; 1975-296.8; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-27

TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	1400	1063	1333	1437	1547	1571	1655	
TOTAL MARKET								
US COMPANIES	649	681	555	637	655	705	808	822
COMMUNICATIONS TRANSISTOR					11	12	15	16
FAIRCHILD	60	68	46	51	51	54	55	37
GENERAL ELECTRIC	32	34	27	30	30	27	31	33
GENERAL INSTRUMENT	1	1	1	1	0	0	0	0
GENERAL MOTORS	16	13	8	8	10	10	12	12
HEWLETT-PACKARD	5	4	3	4	8	10	12	15
INTERCIL	3	3	3	4	6	6	7	7
INTERNATIONAL RECTIFIER	1	2	2	3	5	6	10	14
ITT	24	33	25	31	30	30	30	31
MOTOROLA	195	199	159	191	200	220	262	273
NATIONAL SEMICONDUCTOR	15	20	24	30	26	31	37	39
RAYTHEON	9	10	8	8	10	13	14	14
RCA	42	54	56	64	70	75	85	91
SILICONIX	11	12	9	11	13	13	19	18
SOLID STATE SCIENTIFIC ²	3	3	2	3	5	7	0	0
SOLITRON	11	16	6	9	10	10	14	15
SPRAGUE	5	6	4	6	6	6	5	5
SUPRETEX		0	0	0	0	0	0	3
TELEDYNE	10	10	7	7	7	7	9	9
TEXAS INSTRUMENTS	154	154	136	127	124	129	134	138
TRW	17	26	23	26	28	30	32	30
UNITRODE	2	2	2	2	2	3	6	6
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	1	1	1
OTHERS	33	11	4	21	3	5	18	13
JAPANESE COMPANIES		413	278	434	520	548	457	500
FUJITSU					21	24	25	26
HITACHI					58	78	76	87
MATSUSHITA			52	93	92	105	80	90
MITSUBISHI					31	30	26	30
NIIPPON ELECTRIC			56	93	96	118	107	97
OKI						13	7	10
SANYO								
TOSHIBA					73	110	87	122
OTHERS			170	248	149	70	49	38
EUROPEAN COMPANIES		306	230	258	258	290	301	328
AEG-TELEFUNKEN						6	45	48
FERRANTI							7	9
PHILIPS								70
PLESSEY						2	2	2
SGS-ATES						0	22	25
SIEMENS						71	76	80
THOMSON-CSF						0	0	0
OTHERS						211	149	94
REST OF WORLD		0	0	4	4	4	5	5
MIL		0	0	0	0	0	0	0
OTHERS		0	0	4	4	4	5	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-281.8; 1975-286.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thompson CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-28

SMALL SIGNAL TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET		874	638	793	801	851	817	849
US COMPANIES	368	367	302	332	321	345	390	395
COMMUNICATIONS TRANSISTOR					2	2	3	3
FAIRCHILD	51	52	33	33	32	37	40	36
GENERAL ELECTRIC	17	28	23	24	22	20	22	23
GENERAL INSTRUMENT	1	1	1	1	0	0	0	0
GENERAL MOTORS	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	1	1	1	1	2	3	4	5
INTERCIL	3	3	3	4	6	6	7	7
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
ITT	24	33	25	31	30	30	30	31
MOTOROLA	103	105	84	102	102	115	137	143
NATIONAL SEMICONDUCTOR	13	17	21	25	20	22	25	26
RAYTHEON	9	10	8	8	10	13	14	14
RCA	1	1	1	1	2	3	5	5
SILICONIX	11	12	9	11	13	12	16	15
SOLID STATE SCIENTIFIC ²	0	0	0	0	0	0	0	0
SOLITRON	0	0	1	2	2	2	2	2
SPRAGUE	5	6	4	6	6	6	5	5
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	10	10	7	7	7	7	9	9
TEXAS INSTRUMENTS	92	85	79	65	62	63	64	65
TRW	1	1	1	1	1	1	1	1
UNITRODE	0	0	0	0	0	0	0	0
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	16	2	1	10	2	3	6	5
JAPANESE COMPANIES		291	179	287	316	329	253	268
FUJITSU								
HITACHI								
MATSUSHITA								
mitsubishi								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES		216	157	170	160	173	169	181
AEG-TELEFUNKEN							45	46
FERRANTI							3	4
PHILIPS								70
PLESSEY							2	2
SGS-ATES							10	11
SIEMENS							31	33
THOMSON-CSF							0	0
OTHERS							78	13
REST OF WORLD		0	0	4	4	4	5	5
MIL		0	0	0	0	0	0	0
OTHERS		0	0	4	4	4	5	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1971-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In 1978 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1978 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-29

POWER TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET		526	425	540	636	696	754	806
US COMPANIES	281	314	253	305	334	360	418	427
COMMUNICATIONS TRANSISTOR					9	10	12	13
FAIRCHILD	9	16	13	18	19	17	15	1
GENERAL ELECTRIC	5	6	4	6	8	7	9	10
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	16	13	8	8	10	10	12	12
HEWLETT-PACKARD	4	3	2	3	6	7	8	10
INTERSIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	1	2	2	3	5	6	10	14
ITT	0	0	0	0	0	0	0	0
MOTOROLA	92	94	75	89	98	105	125	130
NATIONAL SEMICONDUCTOR	2	3	3	5	6	9	12	13
RAYTHEON	0	0	0	0	0	0	0	0
RCA	41	53	55	63	68	72	80	86
SILICONIX	0	0	0	0	0	1	3	3
SOLID STATE SCIENTIFIC ²	3	3	2	3	5	7	0	0
SOLITRON	11	16	5	7	8	8	12	13
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	3
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	62	69	57	62	62	66	70	73
TRW	16	25	22	25	27	29	31	29
UNITRODE	2	2	2	2	2	3	6	8
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	1	1	1
OTHERS	17	9	3	11	1	2	12	8
JAPANESE COMPANIES		122	99	147	204	219	204	232
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NISSAN ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES		90	73	86	98	117	132	147
AEG-TELEFUNKEN						0	0	0
FERRANTI						0	4	5
PHILIPS						0	0	0
PLESSEY						0	0	0
SGS-ATES						0	12	14
SIEMENS						42	45	47
THOMSON-CSF						0	0	0
OTHERS						75	71	81
REST OF WORLD		0	0	0	0	0	0	0
MIL		0	0	0	0	0	0	0
OTHERS		0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-30

DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
		944	709	911	997	1193	1291	1427
TOTAL MARKET								
US COMPANIES	403	448	349	423	435	498	600	656
COMMUNICATIONS TRANSISTOR					0	0	0	0
FAIRCHILD	26	28	24	25	30	33	35	44
GENERAL ELECTRIC	37	40	28	37	37	27	31	33
GENERAL INSTRUMENT	29	30	24	32	40	50	67	74
GENERAL MOTORS	11	8	5	5	2	2	3	3
HEWLETT-PACKARD	0	1	1	1	4	5	8	9
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	21	28	29	30	37	41	44	48
ITT	46	61	50	60	58	60	65	70
MOTOROLA	75	78	64	75	89	104	118	116
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	2	3	2	2	0	0	0	0
SOLITRON	0	0	4	4	5	6	9	11
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	14	19	12	9	8	5	0	0
TEXAS INSTRUMENTS	47	50	30	32	31	34	37	39
TRW	3	5	4	5	6	7	0	0
UNITRODE	18	22	19	23	26	32	46	54
VARO	29	21	24	33	36	37	41	45
WESTINGHOUSE	13	16	14	16	15	17	21	24
OTHERS	32	38	15	34	11	38	69	86
JAPANESE COMPANIES		240	159	252	294	378	361	411
FUJITSU					8	9	10	13
HITACHI					66	88	87	113
MATSUSHITA			25	30	30	44	36	47
MITSUBISHI					20	18	16	21
NIPPON ELECTRIC			29	45	53	68	65	85
OKI								
SANYO						12	18	20
TOSHIBA					48	62	65	88
OTHERS		105		177	69	77	64	24
EUROPEAN COMPANIES		254	201	236	268	317	325	355
AEG-TELEFUNKEN							55	58
FERRANTI						5	6	9
PHILIPS								196
PLESSEY						1	2	2
SGS-ATES							16	19
SIEMENS						56	60	62
THOMSON-CSF						0	0	0
OTHERS						255	186	9
REST OF WORLD		0	0	0	0	0	5	5
MIL		0	0	0	0	0	0	0
OTHERS		0	0	0	0	0	5	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-31

SMALL SIGNAL DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET		323	211	286	309	366	407	443
US COMPANIES	138	156	103	123	115	123	153	162
COMMUNICATIONS TRANSISTOR	0	0	0	0	0	0	0	0
FAIRCHILD	24	24	21	21	23	25	29	32
GENERAL ELECTRIC	5	6	5	6	6	4	3	3
GENERAL INSTRUMENT	14	15	11	16	19	26	34	38
GENERAL MOTORS	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	0	0	0	0	1	2	3	3
INTERIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
ITT	23	31	26	32	30	30	30	31
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	2	3	2	2	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	7	10	6	4	3	0	0	0
TEXAS INSTRUMENTS	36	37	19	20	19	20	22	22
TRW	0	0	0	0	0	0	0	0
UNITRODE	4	5	4	5	6	9	13	15
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	23	25	9	17	8	7	19	18
JAPANESE COMPANIES		66	36	77	88	110	115	130
FUJITSU								
HITACHI								
MATSUSHITA								
mitsubishi								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES		101	72	86	106	133	134	146
AEG-TELEFUNKEN						0	0	0
FERRANTI						3	3	4
PHILIPS								113
PLESSEY						1	2	2
SGS-ATES						0	0	0
SIEMENS						23	25	26
THOMSON-CSF						0	0	0
OTHERS						106	104	1
REST OF WORLD		0	0	0	0	0	5	5
MIL		0	0	0	0	0	0	0
OTHERS		0	0	0	0	0	5	5

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-32

POWER DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET		482	398	504	559	662	711	790
US COMPANIES	198	217	189	238	256	289	352	394
COMMUNICATIONS TRANSISTOR					0	0	0	0
FAIRCHILD	2	3	2	3	5	7	5	7
GENERAL ELECTRIC	32	34	23	31	31	23	28	30
GENERAL INSTRUMENT	15	15	13	16	21	24	33	36
GENERAL MOTORS	4	3	2	3	1	1	2	2
HEWLETT-PACKARD	0	0	0	0	1	1	2	3
INTERMIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	19	25	26	27	34	39	43	47
ITT	15	19	15	18	18	19	22	24
MOTOROLA	40	41	38	45	57	68	78	76
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	4	4	3	6	9	11
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	8	10	7	8	8	10	11	13
TRW	3	5	4	5	6	7	0	0
UNITRODE	9	12	11	13	16	18	26	31
VARO	29	21	24	33	36	37	41	45
WESTINGHOUSE	13	16	14	16	15	17	21	24
OTHERS	9	13	6	16	2	12	29	45
JAPANESE COMPANIES		148	107	150	179	233	213	243
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SAHYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES		117	102	116	124	140	146	153
AEG-TELEFUNKEN							55	58
FERRANTI							0	0
PHILIPS							0	52
PLESSEY							0	0
SGS-ATES							0	0
SIEMENS							35	36
THOMSON-CSF							0	0
OTHERS							56	7
REST OF WORLD		0	0	0	0	0	0	0
MIL		0	0	0	0	0	0	0
OTHERS		0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-33

ZENER DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET		139	100	121	129	165	173	194
US COMPANIES	67	75	57	62	64	86	95	100
COMMUNICATIONS TRANSISTOR					0	0	0	0
FAIRCHILD	0	1	1	1	2	1	1	5
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	7	5	3	2	1	1	1	1
HEWLETT-PACKARD	0	1	1	1	2	2	3	3
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	2	3	3	3	3	2	1	1
ITT	8	11	9	10	10	11	13	15
MOTOROLA	35	37	26	30	32	36	40	40
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	7	9	6	5	5	5	0	0
TEXAS INSTRUMENTS	3	3	4	4	4	4	4	4
TRW	0	0	0	0	0	0	0	0
UNITRODE	5	5	4	5	4	5	7	8
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	0	0	0	1	1	19	21	23
JAPANESE COMPANIES		26	16	25	27	35	33	38
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES		38	27	34	38	44	45	56
AEG-TELEFUNKEN							0	0
FERRANTI							3	5
PHILIPS								31
PLESSEY							0	0
SGS-ATES							16	19
SIEMENS							0	0
THOMSON-CSF							0	0
OTHERS							26	1
REST OF WORLD		0	0	0	0	0	0	0
MIL		0	0	0	0	0	0	0
OTHERS		0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-34

THYRISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
		232	180	241	295	317	358	390
TOTAL MARKET								
US COMPANIES	111	118	96	124	147	148	182	190
COMMUNICATIONS TRANSISTOR					0	0	0	0
FAIRCHILD	0	0	0	0	0	0	0	0
GENERAL ELECTRIC	27	28	19	29	30	38	41	43
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	10	13	13	15	17	20	23	26
ITT	0	0	0	0	0	0	0	0
MOTOROLA	16	17	13	18	21	22	25	26
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	2	3	2	3	3	0	0	0
RCA	13	17	17	21	24	27	30	33
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	6	7	4	8	8	7	7	8
TRW	0	0	0	0	0	0	0	0
UNITRODE	3	4	3	3	4	4	6	7
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	14	20	15	22	25	29	36	40
OTHERS	20	9	10	5	15	1	14	7
JAPANESE COMPANIES		42	26	49	69	85	81	93
FUJITSU					0	0	0	0
HITACHI					6	10	10	14
MATSUSHITA					3	3	3	4
mitsubishi					21	19	17	21
NIPPON ELECTRIC					7	10	15	17
OKI								
SANYO						7	12	14
TOSHIBA					14	14	17	19
OTHERS					18	22	7	4
EUROPEAN COMPANIES		72	58	68	79	84	95	107
AEG-TELEFUNKEN							25	29
FERRANTI						0	0	0
PHILIPS								9
PLESSEY						0	0	0
SGS-ATES							8	11
SIEMENS						24	28	30
THOMSON-CSF						0	0	0
OTHERS						60	34	28
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-35

OTHER DISCRETE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET		124	76	113	121	148	175	176
US COMPANIES	67	71	44	54	50	55	75	63
COMMUNICATIONS TRANSISTOR								
FAIRCHILD	1	2	2	2	2	0	0	0
GENERAL ELECTRIC	7	8	5	5	5	10	11	11
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	0	0	0	0	0	0	0	0
HENLETT-PACKARD	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
ITT	5	8	5	6	5	5	5	5
MOTOROLA	17	15	3	4	3	3	8	7
NATIONAL SEMICONDUCTOR	0	1	1	1	0	0	0	0
RAYTHEON	1	1	1	1	0	0	0	0
RCA	4	4	5	5	3	3	3	3
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	6	7	7	7	7	6	6	6
TRW	0	0	0	0	0	0	0	0
UNITRODE	1	1	1	1	1	1	2	1
VARC	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	25	24	14	22	24	27	34	30
JAPANESE COMPANIES	836	27	16	43	44	66	64	73
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	6	3	4	5	14	20	0	14
MATSUSHITA	3	1	3	4	5	5	5	11
MITSUBISHI	2	6	1	5	11	10	10	8
NIPPON ELECTRIC	2	3	4	5	20	13	14	14
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	8	2	8	1	6	6	18	12
OTHERS						12	17	14
EUROPEAN COMPANIES	520	26	16	16	27	27	36	40
ASEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-36

TOTAL OPTOELECTRONIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	166	195	225	288	309	419	595	699
US COMPANIES	137	168	183	213	201	268	359	393
FAIRCHILD	10	13	20	25	16	18	26	24
GENERAL ELECTRIC	3	4	4	6	7	9	12	14
GENERAL INSTRUMENT	0	0	0	0	0	0	39	44
HEWLETT-PACKARD	19	24	30	38	40	54	65	71
INTERNATIONAL RECTIFIER	0	0	1	1	1	2	2	2
LITRONIX	21	19	17	16	15	16	31	34
MONSANTO ²	18	17	17	21	19	30	0	0
MOTOROLA	3	4	3	2	2	2	6	8
NATIONAL SEMICONDUCTOR	11	15	22	15	15	18	25	26
RCA	0	0	0	1	1	8	8	8
SPECTRONICS	2	3	5	7	11	11	15	17
TEXAS INSTRUMENTS	28	42	43	60	57	66	76	84
TRW OPTRON	0	0	0	0	0	0	13	17
OTHERS	22	27	21	21	17	34	41	44
JAPANESE COMPANIES	20	16	22	45	63	94	149	209
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	1	1	1	2	8	10	11	20
MATSUSHITA	2	2	4	6	2	11	10	18
MITSUBISHI	0	0	0	1	2	0	0	0
NIPPON ELECTRIC	3	3	3	4	6	10	14	23
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	6	6	7	15	11	20	35	56
OTHERS	8	4	7	17	34	43	79	92
EUROPEAN COMPANIES	9	11	20	30	45	57	87	97
AEG-TELEFUNKEN							10	16
FERRANTI							0	0
PHILIPS							24	27
PLESSEY							4	4
SGS-ATES							0	0
SIEMENS							42	50
THOMSON-CSF							0	0
OTHERS							7	0
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-37

LED LAMPS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	22	23	32	54	66	89	113	130
US COMPANIES	17	19	24	29	30	37	49	52
FAIRCHILD	2	2	3	4	4	5	7	6
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	10	11
BENLETT-PACKARD	2	3	4	5	6	8	9	10
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
LITRONIX	2	3	4	3	3	2	4	4
MONSANTO ²	4	4	4	5	6	9	0	0
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	2	2	3	4	4	5	7	9
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	3	3	4	6	6	8	10	12
TRW OPTRON	0	0	0	0	0	0	0	0
OTHERS	2	2	2	2	1	0	2	0
JAPANESE COMPANIES	3	2	3	17	25	37	46	61
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	0	0	0	0	0	0	0	0
MATSUSHITA	0	0	0	0	0	0	0	0
MITSUBISHI	0	0	0	0	0	0	0	0
NIPPON ELECTRIC	0	0	0	0	0	0	0	0
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	0	0	0	0	0	0	0	0
OTHERS	3	2	3	17	25	37	46	61
EUROPEAN COMPANIES	2	2	5	8	11	15	18	17
ACG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-234.7

² In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-38

LED DISPLAYS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	104	120	128	151	144	193	265	294
US COMPANIES	88	107	111	120	99	132	170	175
FAIRCHILD	6	7	13	16	9	10	15	14
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	13	15
BEWLETT-PACKARD	13	16	20	26	26	33	41	44
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
LITRONIX ²	18	14	12	11	11	12	21	23
MONSANTO ²	11	10	8	11	8	10	0	0
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	9	13	19	11	11	13	18	17
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	1	1	2	3	3	2	2
TEXAS INSTRUMENTS	18	28	24	30	28	32	37	40
TRW OPTRON	0	0	0	0	0	0	0	0
OTHERS	13	18	14	13	3	19	23	20
JAPANESE COMPANIES	12	8	10	20	28	40	59	81
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	4	5	7	11	17	21	36	38
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-39

OPTICAL COUPLERS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
	15	21	22	29	34	51	61	103
TOTAL MARKET	12	17	17	24	26	37	60	77
US COMPANIES	1	2	2	3	2	2	3	3
FAIRCHILD	1	2	3	5	7	9	12	14
GENERAL ELECTRIC	0	0	0	0	0	0	8	10
GENERAL INSTRUMENT	2	3	3	4	5	7	8	9
BENLETT-PACKARD	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	1	2	1	2	1	2	4	5
LITRONIX	3	3	5	5	5	7	0	0
MONSANTO ²	0	0	0	0	0	0	3	4
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	0	1	1	1	2	3
TEXAS INSTRUMENTS	2	3	3	4	4	6	8	10
TRN OPTRON	0	0	0	0	0	0	0	0
OTHERS	2	2	0	0	1	3	12	19
JAPANESE COMPANIES	2	2	3	3	5	8	11	14
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	0	0	0	0	0	0	0	0
MATSUBITA	0	0	0	0	0	0	0	0
MITSUBISHI	0	0	0	0	0	0	0	0
NIPPON ELECTRIC	0	0	0	0	0	0	0	0
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	0	0	0	0	0	0	0	0
OTHERS	2	2	3	3	5	8	11	14
EUROPEAN COMPANIES	1	2	2	2	3	6	10	12
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-263.9; 1978-207.4; 1979-221.3; 1980-224.7

² In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.
July 1981

Appendix B—Market Share Estimates

Table B-40

OTHER TOTAL OPTOELECTRONICS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1973	1974	1975	1976	1977	1978	1979	1980
TOTAL MARKET	25	31	43	54	65	86	136	172
US COMPANIES	20	25	31	40	46	62	80	89
FAIRCHILD	1	2	2	2	1	1	1	1
GENERAL ELECTRIC	2	2	1	1	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	8	8
HEWLETT-PACKARD	2	2	3	3	3	6	7	8
INTERNATIONAL RECTIFIER	0	0	1	1	1	2	2	2
LITRONIX	0	0	0	0	0	0	2	2
MONSANTO ²	0	0	0	0	0	4	0	0
MOTOROLA	3	4	3	2	2	2	3	4
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RCA	0	0	0	1	1	6	8	8
SPECTRONICS	2	2	4	4	7	7	11	12
TEXAS INSTRUMENTS	5	8	12	20	19	20	21	22
TRW OPTRON	0	0	0	0	0	0	13	17
OTHERS	5	5	5	6	12	12	4	5
JAPANESE COMPANIES	3	4	6	5	5	9	33	53
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	2	6	9	14	15	23	30
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹ Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1972-302.0; 1973-268.7; 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7

² In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST, Inc.
July 1981

SIS Code: Appendix B

APPENDIX B - MARKET SHARE ESTIMATES

DATAQUEST's Semiconductor Industry Service has completed the final version of Appendix B - Market Share Estimates, which can be found in Volume III of the SIS notebooks. This 40-page appendix update analyzes semiconductor markets by estimating product market share according to manufacturer. For more details, please contact the SIS notebook holder in your location.

Appendix B follows all semiconductor product segments chronologically, and divides the merchant semiconductor market among 50 U.S. companies, 7 European companies, 8 Japanese companies, and Rest of World (ROW) companies.

Worldwide Semiconductor Shipment Estimates

Figure 1 shows worldwide estimated semiconductor shipments in dollars segmented by geographical region of supplier for the years 1976 through 1981. The worldwide semiconductor market grew at a compound annual rate of 20 percent between 1976 and 1981. During this time period, semiconductor shipments by U.S.-based companies, which grew at 18 percent, were slightly under the industry growth rate, while Japanese company shipments grew faster at 27 percent, and European company shipments grew more slowly at 13 percent.

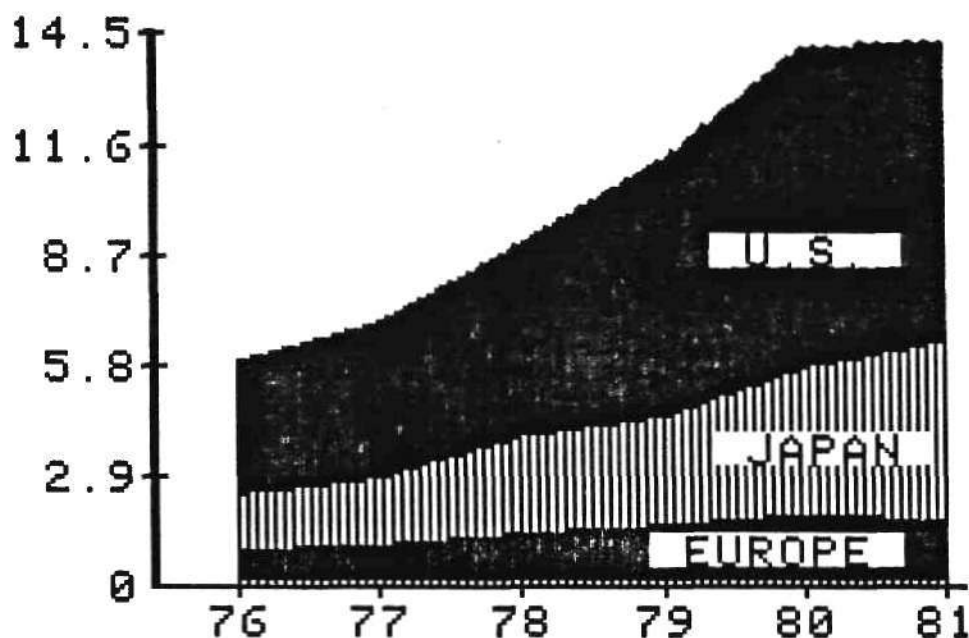
DATAQUEST estimates differ from the Semiconductor Industry Association (SIA) statistics because:

- Different European exchange rates were used
- The SIA includes European resales of components manufactured by U.S. and European semiconductor companies
- DATAQUEST includes some hybrids in the linear production values

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Figure 1
TOTAL SEMICONDUCTOR SHIPMENTS
(Billions of Dollars)



Source: DATAQUEST
September 1982

The U.S. companies' percent of market share of the semiconductor market has decreased from 60 percent in 1976 to less than 56 percent in 1981, while the Japanese shipments have grown from 25 percent in 1976 to more than 33 percent in 1981. European factory shipments have decreased from 15 percent of total shipments in 1976 to less than 14 percent in 1981.

Estimates of total semiconductor revenues for more than 65 merchant semiconductor suppliers can be found in Appendix B for the years 1974 through 1981. Included are U.S. companies, as well as European, Japanese, and Rest of World companies. The growth rates for specific companies can be calculated from the data presented and compared with one another, with industry averages, or with growth of regional factory shipments.

The totals given for U.S. companies reflect worldwide production. For example, Texas Instruments manufactures semiconductors in various parts of the world; however, its entire production is included under the U.S. companies' market share section. In contrast, foreign-owned subsidiaries such as Litronix and Signetics are included in the U.S. total market, not in the total of the parent company location. This inconsistency occurs because most foreign-owned subsidiaries in the United States maintain their own identity and do not always carry the name of the parent company.

Figure 2 shows the product breakdown for the semiconductor suppliers listed in Appendix B. For the most part, the semiconductor breakdown is self-apparent. The Bipolar Digital and MOS segments are broken down in two ways—Technology and Function, that is—Memory, Microprocessor, and Logic.

Figure 2

INDEX OF TABLES

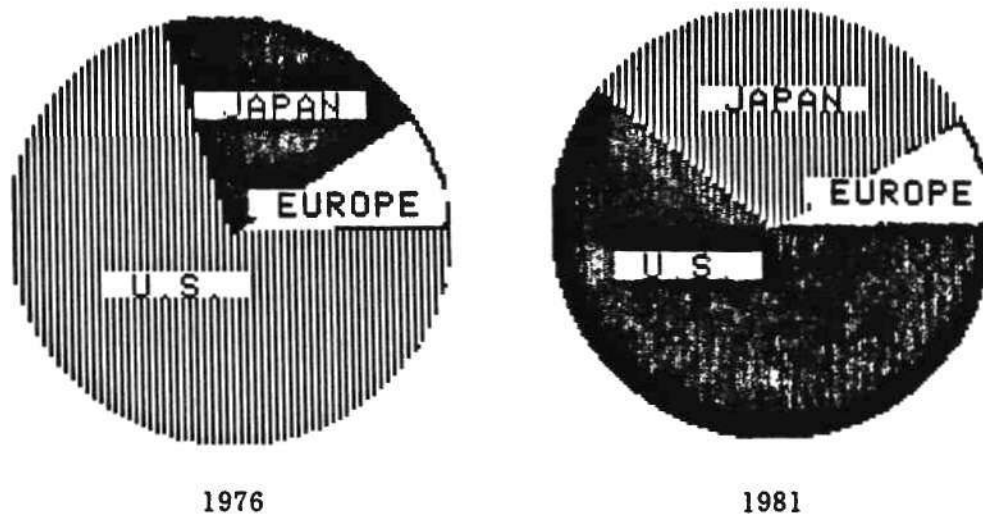
<u>Product Segment</u>	<u>Table</u>
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital (Technology)	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
Bipolar Digital (Function) - Same as Table B-3	B-8
Memory	B-9
Logic	B-10
MOS (Technology)	B-11
PMOS	B-12
NMOS	B-13
CMOS	B-14
MOS (Function) - Same as Table B-11	B-15
Memory	B-16
Microprocessor	B-17
Logic	B-18
Linear	B-19
Amplifiers	B-20
Voltage Regulators	B-21
Data Conversion	B-22
Interface	B-23
Special Consumer	B-24
Other	B-25
Total Discrete	B-26
Transistor	B-27
Small Signal Transistor	B-28
Power Transistor	B-29
Diode	B-30
Small Signal Diode	B-31
Power Diode	B-32
Zener Diode	B-33
Thyristor	B-34
Other	B-35
Total Optoelectronics	B-36
LED Lamps	B-37
LED Displays	B-38
Optical Couplers	B-39
Other	B-40

Worldwide Integrated Circuit Market Share Estimates

Figure 3 presents DATAQUEST estimates of the percent of worldwide integrated circuit (IC) market shares segmented by geographical region of supplier for the years 1976 and 1981. The compound annual growth rate (CAGR) for total integrated circuit shipments in dollars between 1976 and 1981 was 27 percent. During this time period, U.S. IC factory shipments in dollars grew only 24 percent, while European and Japanese shipments grew 23 percent and 38 percent, respectively. IC shipments in dollars by U.S. companies represented 70 percent of the total integrated circuit shipments in 1976, and 61 percent of the total in 1981. IC shipments by European companies represented 9 percent of total IC shipments in 1976, decreasing to 7 percent in 1981, while Japanese companies increased the percent of total IC factory shipments from 21 percent in 1976 to 38 percent in 1981. The Rest of World companies, which represent the remaining percent of total IC factory shipments, have remained less than 1 percent of total IC factory shipments during 1976 through 1981.

Figure 3

TOTAL IC SHIPMENT MARKET SHARES (Dollars)



Source: DATAQUEST
September 1982

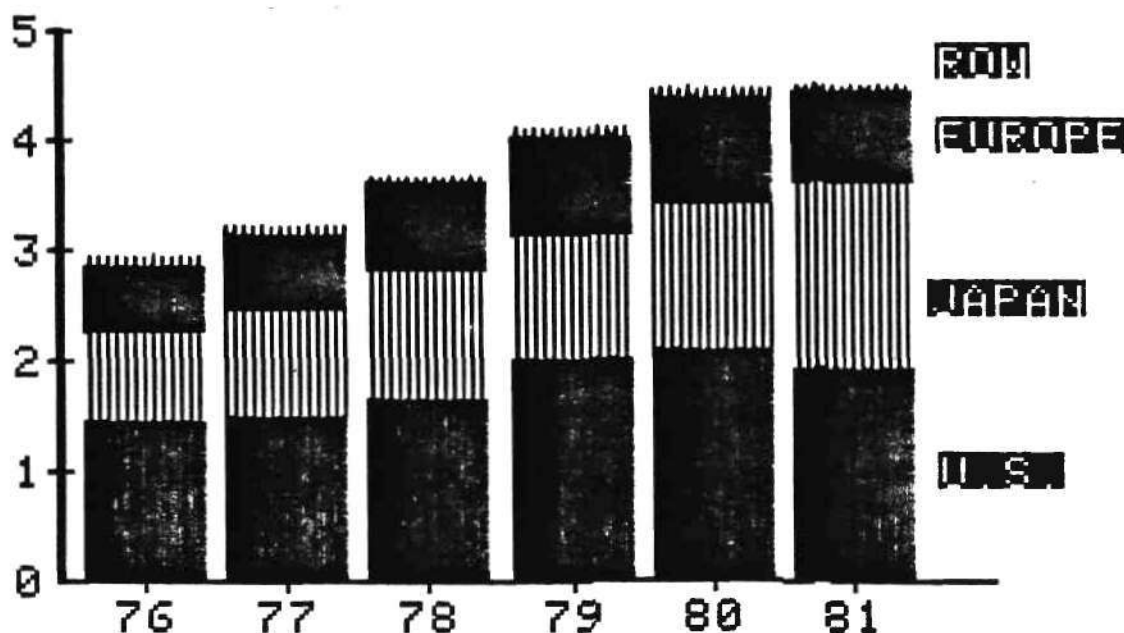
Appendix B presents the integrated circuit market share estimates for over 50 United States, European, and Japanese companies, and further breaks down the IC market into Bipolar Digital, MOS, and Linear market shares. Note that both the MOS and Bipolar Digital segments are broken down by technology and by function. Bipolar Digital is further segmented into TTL, DTL, ECL, and Other, as well as Memory and Logic. The MOS segment is broken down into NMOS, PMOS, and CMOS, as well as Memory, Microprocessor, and Logic.

Worldwide Discrete/Optoelectronics Shipment Estimates

Figure 4 shows DATAQUEST estimates of the worldwide discrete plus optoelectronics shipments in dollars by geographical region for 1976 through 1981. Unlike Appendix B, which presents discrete devices and optoelectronic devices separately, Figure 4 includes optoelectronic revenues with discrete revenues. This combined product segment has experienced a compound annual growth rate in dollars of more than 9 percent between 1976 and 1981. European and U.S. companies' shipments in dollars grew at a slower rate of 6 percent during this period, while Japanese companies grew more than 15 percent between 1976 and 1981.

Figure 4

TOTAL DISCRETE/OPTO SHIPMENTS (Billions of Dollars)



Source: DATAQUEST
September 1982

The U.S. companies' discrete/opto market share decreased from more than 50 percent of total market in 1976 to 44 percent in 1981. European companies' market share during these years declined only slightly from 21 percent to 19 percent. The Japanese companies' estimated market share increased, from 29 percent of the total discrete plus opto shipments in 1976, to more than 38 percent of the total in 1981.

The discrete market share tables of Appendix B provide market share estimates for over 30 United States, European, and Japanese companies. The Discrete market is segmented into Transistor, Diode, Thyristor, and Other. The diode market is further segmented into Small Signal, Power, and Zener Diode; while Transistors are segmented into Small Signal and Power Devices. The Optoelectronics' market is segmented into LED Lamps, LED Displays, Optical Couplers, and Other. Please refer to Figure 2 for these breakdowns.

Value of Appendix B Market Share Estimates

Semiconductor Suppliers

Appendix B is a valuable asset to semiconductor suppliers. It enables semiconductor manufacturers to assess their activity and potential in a particular market segment by comparing their market share to that of their competitors; by becoming aware of other product areas in which their competitors are involved; by indicating the scope of their competitors' activities; and by presenting the feasibility of entering foreign markets, based on the number and sizes of the competitors in those markets.

Semiconductor Users

Semiconductor users find Appendix B useful in identifying the suppliers within a given product segment, as well as in ranking their relative size. It is important for users to understand how their suppliers rank in the market, as well as against one another. Large users can also determine the fraction of their vendor's output that they are consuming.

Equipment Suppliers

Equipment suppliers serving the semiconductor industry find Appendix B is a valuable reference. Since semiconductor markets are highly specific with respect to equipment, it is beneficial to know exactly to what degree the customers are involved in a particular market. It also provides a list of potential buyers for a given type of equipment that is associated with product segments. The growth of a given market indicates the need for new manufacturing equipment. In addition, the more rapidly growing companies tend to purchase more equipment in relation to sales than the more slowly growing companies.

Material Suppliers

Material suppliers find Appendix B useful in referencing semiconductor revenues of the semiconductor manufacturers in a particular market, applying the appropriate industry standard A/S ratio (square inches of silicon per sales' dollar) and determining the subsequent square inches of silicon consumed by company. Many other material suppliers develop similar ratios for material such as chemicals, gases, photoresist, masks, and indirect materials. Since Appendix B shows historic semiconductor revenues by market, trends can then be observed. Appendix B also provides names of potential customers in new geographical markets.

Electronic Distributors

Electronic distributors use Appendix B to determine the relative market position of their principals in each market. By observing the overall growth of semiconductor shipments, these semiconductor distributors can also determine their potential market shares. Appendix B also provides insight into alternate vendors and potential geographic markets.

Mary Ellen Wetlesen

SIS Code: Appendix B

**PRELIMINARY ESTIMATES OF 1981 WORLDWIDE SEMICONDUCTOR SHIPMENTS
JAPANESE GAIN MARKET SHARE****(REVISED)****SUMMARY**

DATAQUEST's preliminary U.S. dollar estimates of 1981 worldwide semiconductor shipments for Japanese, U.S., and West European companies are up 1 percent from the previous year. Some geographical areas and some product areas fared worse than others. Although Japanese company shipments in dollars were up an estimated 25 percent, U.S. and West European companies' shipments were down an estimated 6 percent and 14 percent, respectively.

1981 SEMICONDUCTOR SHIPMENTS SCENARIO

In 1981 the growth of Japanese companies' estimated semiconductor shipments, both in units and U.S. dollars, outperformed the growth of U.S. and West European companies' semiconductor shipments across the board. Table 1 shows estimated growth of semiconductor shipments in 1981 by product.

Japanese companies gained market share in both memories and micro-processors. The growth of 1981 Japanese semiconductor shipments can also be attributed to an estimated 15 percent growth in the Japanese market, 90 percent of which is domestically owned. The Japanese 1981 Video Cassette Recorder (VCR) market, up an estimated 75 percent in units from the previous year, was responsible for much of the 15 percent increase. Furthermore, the Japanese-dominated Korean market, which represents more than \$75 million, remained stable in 1981.

Price erosion, soft markets in Europe and the United States, a strong U.S. dollar, and fluctuating exchange rates all contributed to the poor performance of both U.S. and West European semiconductor suppliers. Throughout most of 1981, West European currencies declined in value with respect to the U.S. dollar. An 18 percent shift in exchange rates greatly reduced dollar values of European sales. In 1981, the overall West European semiconductor market was down an estimated 26 percent in dollars. The currency factor, coupled with the generally weak European economy and semiconductor market, made revenues look bleak for participants in the European market. The Japanese economy, on the other hand, was stronger for most of 1981, as the yen followed the dollar very closely. The Japanese-dominated Asian markets also showed modest increases in 1981.

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Table 1

ESTIMATED GROWTH IN SEMICONDUCTOR SHIPMENTS BY PRODUCT SEGMENT
(Percentage Growth (Decline)-1981 vs. 1980)*

	Japanese Suppliers		U.S. and W. European Suppliers	
	<u>Units</u>	<u>Dollars</u>	<u>Units</u>	<u>Dollars</u>
Total Semiconductor	37%	25%	1%	(8%)
Total IC	31%	24%	(8%)	(7%)
Bipolar Digital	18%	32%	(15%)	(6%)
Std TTL	N/A	N/A	(38%)	(33%)
MOS	36%	13%	(8%)	(10%)
RAM	N/A	N/A	21%	(30%)
ROM/EPROM	N/A	N/A	60%	5%
MPU/Peripherals	N/A	N/A	25%	19%
Linear	34%	40%	7%	0%
Total Discrete/Opto	39%	31%	3%	(10%)

*Japanese shipments were converted at Y225 = US\$1 and
Y221 = US\$1 for 1980 and 1981, respectively.

N/A denotes data Not Available

Source: DATAQUEST, Inc.
SIA, Japanese Ministry
of Finance
March 1982

The West European companies gained market share in Europe in 1981. They attained 44 percent of the European market in dollars, up from 42 percent in the previous year. The U.S. manufacturers had an estimated 51 percent of the European market in 1981, down from 53 percent in the preceding year. The Japanese were least affected by the weak European economic climate as they have only an estimated 5 percent of the European market.

Integrated Circuit (IC) shipments did not hold up as well in 1981 for U.S. and West European companies as they did for Japanese companies. Total 1981 IC shipments worldwide for U.S. and West European suppliers were down an estimated 7 percent in dollars from the previous year, whereas estimated Japanese suppliers' worldwide IC shipments in dollars were up 24 percent. Furthermore, estimated IC unit shipments by Japanese companies were up 31 percent, whereas estimated U.S. and West European IC unit shipments were down 8 percent.

Not all U.S. and West European IC product categories declined in 1981. Although estimated total bipolar digital shipments were down 6 percent in dollars and 15 percent in units, Schottky TTL, ECL, and bipolar Random Access Memory (RAM) devices experienced estimated dollar growths of 5 percent, 29 percent, and 13 percent, respectively. Unit shipment increases were 5 percent for Schottky TTL, 8 percent for ECL, and 22 percent for bipolar RAMs. However, standard TTL logic did not fare as well in 1981, with shipments declining an estimated 38 percent in units and 33 percent in dollars from the preceding year. In contrast, 1981 worldwide Japanese bipolar digital shipments were up an estimated 18 percent in units and 32 percent in U.S. dollars.

Although 1981 MOS device shipments by U.S. and West European companies are estimated to be down 10 percent in dollars and 8 percent in units, not all MOS devices contributed to the dismal year. MOS microprocessor (MPU) shipments in 1981 are estimated to be up 19 percent in dollars and 25 percent in units from the previous year. For Read Only Memories (ROMs) and Electrically Programmable Read Only Memories (EPROMs), unit volume increases barely outstripped price declines in 1981. Thus, estimated growth was 60 percent in units but only 5 percent in revenues. In fact, it was the ROM business that aided companies such as American Microsystems, Commodore, Electronic Arrays, General Instrument, and Synertek in 1981.

SEMICONDUCTOR SUPPLIERS

Table 2 shows the preliminary ranking of the 32 leading merchant semiconductor suppliers. Preliminary estimates show that of the top ten semiconductor suppliers worldwide, five are U.S.-based, four are Japanese-based, and one is European-based. Collectively, the 32 leading merchant semiconductor suppliers had 1981 shipments that were down approximately 1 percent from the previous year.

Table 2

PRELIMINARY ESTIMATES
1981 WORLDWIDE SHIPMENTS BY LEADING SEMICONDUCTOR SUPPLIERS
(Millions of Dollars)

<u>Company</u>	<u>ICs</u>	<u>Discrete/Opto</u>	<u>Total</u>
Texas Instruments	\$1,085	\$ 210	\$ 1,295
Motorola	720	465	1,185
Nippon Electric	626	302	928
Hitachi	519	305	824
Toshiba	388	380	768
National Semiconductor	672	58	730
Fairchild	407	98	505
Intel	500	0	500
Fujitsu	432	50	482
Philips*	240	240	480
Matsushita	161	218	379
Signetics	375	0	375
Siemens**	155	182	337
Mitsubishi	206	102	308
RCA	192	101	293
AMD	277	0	277
General Instrument	150	114	264
Mostek	255	0	255
Sanyo	161	55	216
ITT	108	92	200
SGS-ATES	120	58	178
Harris	165	0	165
Thomson-CSF	29	127	156
AEG-Telefunken	40	101	141
American Microsystems	130	0	130
General Electric	3	119	122
Hewlett-Packard	0	90	90
International Rectifier	0	90	90
Intersil	81	7	88
Synertek	72	0	72
Rockwell	70	0	70
Unitrode	0	70	70
Total of Above Companies	\$8,339	\$3,634	\$11,973

*Excludes Signetics subsidiary

**Excludes U.S. subsidiaries

Source: DATAQUEST, Inc.
March 1982

Table 3 compares the preliminary 1981 worldwide semiconductor revenue estimates for the leading semiconductor suppliers with their estimated 1980 semiconductor revenues. Indeed, 1981 saw a shakeout for many U.S. and West European semiconductor suppliers in terms of revenue growth. Annual growth percentages for these suppliers ranged from negative 23 and 22 percents for Mostek and AEG-Telefunken, respectively, to positive 20 percent for Synertek and 8 percent for both General Instrument and Motorola. At the same time, most Japanese suppliers experienced annual revenue growths of more than 20 percent, with Matsushita and Mitsubishi both having revenues that grew by 26 percent.

Obviously, the decrease in 1981 semiconductor revenues from the previous year depended to a large extent upon the product mix and the end-user segment for which the products were targeted. Consumer, military, and telecommunication market segments held up well for some U.S. suppliers. For example, Motorola sells diverse semiconductor devices into most end-user segments, and it experienced an estimated 8 percent growth in 1981 semiconductor revenues over the previous year. In contrast, Mostek's decline resulted from its strong focus on MOS dynamic RAMs, one of the hardest hit segments in the 1981 recession.

IC SUPPLIERS

Table 4 shows preliminary estimates for the 23 leading IC suppliers. In general, the IC market for U.S. and West European suppliers was down an estimated 7 percent in dollars and 8 percent in units, whereas for Japanese suppliers it was up an estimated 24 percent in dollars and 31 percent in units. Collectively, the 23 leading IC suppliers experienced an estimated 1 percent decrease in worldwide IC shipments in 1981 compared with the previous year.

Of those U.S. IC suppliers listed in Table 4, the only ones that experienced growth in 1981 revenues were General Instrument, American Microsystems, and Motorola, with annual growths of 19, 11, and 8 percent, respectively. These positive growths can be attributed partly to participation in the microprocessor and MOS Read Only Memory (ROM) markets, which had worldwide shipment growths in dollars of 19 percent and 5 percent, respectively, for the U.S. and European suppliers.

Two of the hardest hit segments in 1981 were the standard TTL logic market (which appeared to be showing a secular shift to newer Schottky and Low-Power Schottky family products) and the MOS RAM market. Dollar revenues in these markets were down 33 percent and 30 percent, respectively. As a result, such semiconductor suppliers as Intel, Mostek, and Texas Instruments saw reduced sales in 1981. Intel reported a decline in memory component revenues of more than \$100 million in 1981 compared with 1980. Texas Instruments, in 1980 the world's number one MOS memory producer (in revenues), was hit there as well as in the standard TTL logic products. Mostek, heavily concentrated in MOS memory (78 percent of business in 1980), saw revenues drop 23 percent because of a 60 percent decline in 16K RAM prices.

Table 3

PRELIMINARY
ESTIMATED 1981 VERSUS 1980 WORLDWIDE
SEMICONDUCTOR SHIPMENT COMPARISONS
(Millions of Dollars)

<u>Company</u>	<u>1980</u>	<u>1981</u>	<u>Annual Growth Percent</u>
Texas Instruments	\$ 1,580	\$ 1,295	(18.0%)
Motorola	1,100	1,185	7.7%
Nippon Electric	769	928	20.7%
Hitachi	658	824	25.2%
Toshiba	629	768	22.1%
National Semiconductor	770	730	(5.2%)
Fairchild	566	505	(10.8%)
Intel	575	500	(13.0%)
Fujitsu	419	482	15.0%
Philips*	558	480	(14.0%)
Matsushita	300	379	21.3%
Signetics	384	375	(2.3%)
Siemens**	423	337	(20.3%)
Mitsubishi	254	308	26.3%
RCA	322	293	(9.0%)
AMD	282	277	(1.8%)
General Instrument	244	264	8.2%
Mostek	330	255	(22.7%)
Sanyo	180	216	20.0%
ITT	241	200	(17.0%)
SGS-ATES	170	178	4.7%
Harris	185	165	(10.8%)
Thomson-CSF	179	156	(12.8%)
AEG-Telefunken	180	141	(21.7%)
American Microsystems	117	130	11.1%
General Electric	137	122	(10.9%)
Hewlett-Packard	95	90	(5.3%)
International Rectifier	90	90	0.0%
Intersil	106	88	(17.0%)
Synertek	60	72	20.0%
Unitrode	70	70	0.0%
Rockwell	70	70	0.0%
Total of Above Companies	\$12,043	\$11,973	(0.6%)

*Excludes Signetics subsidiary

**Excludes U.S. subsidiaries

Source: DATAQUEST, Inc.
March 1982

Table 4

PRELIMINARY ESTIMATES
WORLDWIDE SHIPMENTS BY LEADING IC SUPPLIERS
(Millions of Dollars)

<u>Company</u>	<u>1980</u>	<u>1981</u>	<u>Annual Growth Percent</u>
Texas Instruments	\$1,305	\$1,085	(16.9%)
Motorola	670	720	7.5%
National Semiconductor	705	672	(4.7%)
Nippon Electric	533	626	17.4%
Hitachi	410	519	26.6%
Intel	575	500	(13.0%)
Fujitsu	380	432	13.7%
Fairchild	461	407	(11.7%)
Toshiba	332	388	16.9%
Signetics	384	375	(2.3%)
AMD	282	277	(1.8%)
Mostek	330	255	(22.7%)
Philips*	253	240	(5.1%)
Mitsubishi	174	206	18.4%
RCA	187	192	2.7%
Harris	185	165	(10.8%)
Sanyo	136	161	18.4%
Matsushita	130	161	23.8%
Siemens**	198	155	(21.7%)
General Instrument	126	150	19.0%
American Microsystems	117	130	11.1%
SGS-ATES	118	120	1.7%
ITT	135	108	(20.0%)
Total of Above Companies	\$8,126	\$8,044	(1.0%)

*Excludes Signetics subsidiary

**Excludes all U.S. subsidiaries

Source: DATAQUEST, Inc.
March 1982

DISCRETE/OPTO SUPPLIERS

Discrete devices held up relatively well in 1981 compared to IC devices. Thanks to a better industry capacity balance, more mature product lines, and a significant new business increment from VCRs, worldwide unit volumes were steady for U.S. and West European suppliers, and up more than 20 percent for Japanese suppliers. Average Selling Prices (ASPs) declined 5 to 15 percent for most product lines, compared to 1980 levels.

Discrete manufacturers fared better or worse (depending on their product mix), with Motorola doing best among U.S. companies (up about 8 percent, including opto). Table 5 shows preliminary discrete device revenue estimates for the leading 23 manufacturers. (Note that in this table discrete includes optoelectronics.) Collectively, these suppliers increased 1981 discrete plus opto shipments in dollars by 1 percent.

Optoelectronic products were more mixed, with U.S. companies losing ground to Japanese and Rest of World (ROW) suppliers in some foreign consumer products markets. Production by Japanese companies increased an average of about 25 percent in dollars. Production by U.S. companies was in most cases flat to down, sometimes by as much as 20 percent.

MOS SUPPLIERS

MOS revenues in 1981 were down an estimated 10 percent for the U.S. and West European semiconductor suppliers, whereas they were up an estimated 13 percent for the Japanese semiconductor suppliers. Memory prices fell dramatically in 1981, an estimated 60 to 80 percent for U.S. and West European suppliers, although unit volumes held up. The repercussions of these price declines are apparent when one reads in the Intel 1981 Annual Report that, "In spite of record unit volumes and the success of our cost reduction and yield improvement programs, the revenue and pretax profits contributed by memory components each dropped by more than \$100 million from the preceding year."

Table 6 shows preliminary estimates of 1981 MOS shipments for the 21 leading MOS suppliers. The only U.S. and West European suppliers that had a positive annual growth in MOS revenues were American Microsystems, Synertek, and General Instrument, with annual growths of 11 percent, 20 percent, and 18 percent, respectively. Again, this growth is mainly due to the strength of the MOS microprocessor and MOS ROM markets.

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Table 5

PRELIMINARY ESTIMATES
1981 WORLDWIDE SHIPMENTS BY LEADING DISCRETE/OPTO SUPPLIERS
(Millions of Dollars)

<u>Company</u>	<u>1980</u>	<u>1981</u>	<u>Annual Growth Percent</u>
Motorola	\$ 430	\$ 465	8.1%
Toshiba	297	380	27.9%
Hitachi	248	305	23.0%
Nippon Electric	236	302	28.0%
Philips*	295	240	(18.6%)
Matsushita	170	218	28.2%
Texas Instruments	275	210	(23.6%)
Siemens**	225	182	(19.1%)
Thomson-CSF	140	127	(9.3%)
General Electric	134	119	(11.2%)
General Instrument	118	114	(3.4%)
RCA	135	101	(25.2%)
Mitsubishi	80	102	27.5%
AEG-Telefunken	135	101	(25.2%)
Fairchild	105	98	(6.7%)
ITT	106	92	(13.2%)
Hewlett-Packard	95	90	(5.3%)
International Rectifier	90	90	0.0%
Unitrode	70	70	0.0%
National Semiconductor	65	58	(10.8%)
SGS-ATES	52	58	11.5%
Sanyo	44	55	25.0%
Fujitsu	39	50	28.2%
Total of Above Companies	\$3,584	\$3,627	1.2%

*Excludes Signetics subsidiary

**Excludes U.S. subsidiaries

Source: DATAQUEST, Inc.
March 1982

Table 6

PRELIMINARY ESTIMATES
1981 WORLDWIDE SHIPMENTS BY LEADING MOS SUPPLIERS
(Millions of Dollars)

<u>Company</u>	<u>1980</u>	<u>1981</u>	<u>Annual Percent Growth</u>
Intel	\$ 548	\$ 475	(13.3%)
Motorola	405	390	(3.7%)
Nippon Electric	348	383	10.1%
Texas Instruments	502	355	(29.3%)
Fujitsu	287	320	11.5%
Mostek	330	255	(22.7%)
Hitachi	220	248	12.7%
Toshiba	219	240	9.6%
General Instrument	120	142	18.3%
National Semiconductor	184	140	(23.9%)
AMD	139	135	(2.9%)
American Microsystems	117	130	11.1%
RCA	115	110	(4.3%)
Mitsubishi	96	106	10.4%
Fairchild	105	88	(16.2%)
Philips*	80	76	(5.0%)
Synertek	60	72	20.0%
Rockwell	70	70	0.0%
Matsushita	57	63	10.5%
Siemens**	86	60	(30.2%)
Harris	60	52	(13.3%)
Total of Above Companies	\$4,148	\$3,910	(5.7%)

*Excludes Signetics subsidiary

**Excludes U.S. subsidiaries

Source: DATAQUEST, Inc.
March 1982

SIS Code: Vol. III, Appendix B

**PRELIMINARY 1982 WORLDWIDE SEMICONDUCTOR
MARKET SHARE ESTIMATES****SUMMARY**

DATAQUEST estimates that in 1982:

- Worldwide merchant market semiconductor consumption increased 2.6 percent over 1981, measured in U.S. dollars.
- Worldwide shipments of Japanese suppliers declined 0.4 percent.
- Worldwide shipments by U.S. and West European suppliers increased 0.9 percent.

Despite these poor results, some companies grew significantly because of good product positioning in specific areas. MOS memory, which suffered badly in 1981, grew 23 percent in 1982. Japanese supplier shipments of MOS memory grew by an estimated 35 percent, whereas U.S. and West European supplier shipments of MOS memory grew only 18 percent.

This newsletter presents our preliminary revenue estimates for the major semiconductor suppliers. DATAQUEST is preparing a newsletter for publication later in January, which analyzes the 1981 and 1982 performance of the start-up and other smaller semiconductor companies.

1982 WORLDWIDE SEMICONDUCTOR CONSUMPTION

Worldwide semiconductor merchant market consumption in 1982 grew an estimated 2.6 percent, with integrated circuits growing 7.2 percent, discrete devices declining 8.5 percent, and optoelectronics declining 1.4 percent. Table 1 shows the 1981 and 1982 worldwide merchant market semiconductor consumption by major product category, and shows the year-to-year percentage change.

The MOS digital integrated circuits market was the strongest product category in 1982. Its estimated 12.5 percent growth was due largely to the strength of MOS memory, which grew 23 percent from \$2,080 million in 1981 to \$2,550 million in 1982. The 64K dynamic RAMs, high-density EPROMs, and ROMs were the major

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growth segments within MOS memory. Consumption of bipolar digital integrated circuits grew 5.6 percent, while consumption of linear integrated circuits declined 0.4 percent.

WORLDWIDE SEMICONDUCTOR MARKET SHARES

Although worldwide merchant market semiconductor consumption grew 2.6 percent, Japanese semiconductor companies' shipments declined 0.4 percent. Japanese shipments as measured in Japanese yen actually increased by 11.8 percent between 1981 and 1982, but the strength of the U.S. dollar versus the Japanese yen caused an 11 percent decline in the Japanese results when measured in U.S. dollars. The exchange rates used in our calculations are 221 yen per U.S. dollar for 1981, and 248 yen per U.S. dollar in 1982. Table 2 presents the estimated percent change in 1982 revenues versus 1981 revenues for Japanese suppliers and U.S. and West European suppliers, by major product category.

For 1982 versus 1981, worldwide shipments of integrated circuits by Japanese suppliers increased 10.2 percent, a very good performance given the strength of the U.S. dollar in 1982. Bipolar digital integrated circuits increased by approximately 22 percent and MOS ICs increased an estimated 20 percent, whereas linear integrated circuits decreased 7 percent. Japanese companies' shipments of MOS memory increased 35 percent. The strong growth in Japanese MOS memory shipments resulted from the strong Japanese position in 64K dynamic RAMs, CMOS static RAMs, and EPROMs.

Japanese suppliers saw their shipments of discrete devices decline by almost 24 percent and optoelectronics decline by slightly more than 1 percent. The dramatic decline in discrete shipments was largely due to the weakness of the video tape recorder (VTR) market in Japan and worldwide. Because of excess inventories of VTRs in 1982 and a corresponding weak market, production of these products was cut dramatically in 1982. Furthermore, some of the newer VTR designs are incorporating more integration, which reduces the number of discrete devices from about 300 small signal discretes per VTR to fewer than 100 per VTR.

Worldwide semiconductor shipments by the U.S. and West European suppliers increased an estimated 1 percent in 1982, measured in U.S. dollars. The integrated circuit shipments of these suppliers increased 4 percent, with bipolar digital essentially flat, MOS increasing 7 percent, and linear integrated circuits increasing 3 percent. Discrete device shipments by these same suppliers declined 8 percent, while optoelectronic shipments increased 2 percent. The MOS memory shipments by these suppliers increased about 18 percent.

It was a difficult year for all semiconductor suppliers in 1982. The semiconductor market as a whole grew only marginally, but there were pockets of strength in some end-user markets—specifically personal computers, home computers, small business systems, and video games. The semiconductor parts that recorded the most growth in 1982 included 64K dynamic RAMs, CMOS static RAMs, high-density EPROMs, and ROMs. Bipolar logic was particularly weak as were linear and discrete devices.

Table 3 shows the worldwide semiconductor revenues of the leading merchant semiconductor suppliers. These preliminary estimates show that the top ten suppliers include five U.S. companies, four Japanese companies, and one European

company. These ten companies had collective semiconductor revenues of \$7.7 billion, or 52 percent of the total market. The 39 leading semiconductor suppliers had total 1982 shipments of \$12.7 billion, which represented 86 percent of the worldwide semiconductor market in 1982.

Table 4 compares the 1982 worldwide semiconductor revenues with the 1981 semiconductor revenues of these 39 leading suppliers, and shows the year-to-year percent change together with the 1982 and 1981 ranking. Texas Instruments, Motorola, Nippon Electric, Hitachi, and Toshiba were the top five producers, each retaining the same ranking as 1981. The next three positions were held by National Semiconductor, Intel, and Philips, with no changes from their 1981 rankings. Fujitsu jumped into ninth place from eleventh place, and Fairchild retained its tenth place ranking.

The year-to-year growth in total revenues ranges from a growth of 30 percent for Ferranti to a decline of 14 percent for Matsushita and Sanyo. The dollar revenue growth in 1982 for each company depended to a large degree upon its product positioning in the marketplace as well as the currency exchange rates.

Integrated Circuit Market Shares

Table 5 shows DATAQUEST's preliminary estimates for 1982 worldwide integrated circuit revenues as compared with 1981 results for the 30 leading integrated circuit suppliers. The \$9,187 million shipments by these suppliers represented 87 percent of the 1982 IC market. While the worldwide IC market grew 7.2 percent in 1982, some suppliers, such as General Instrument, had revenue growth of as much as 27 percent while others saw their IC revenues drop as much as 12 percent. Unfavorable exchange rates affected some of these comparisons. Texas Instruments remains the leading IC supplier with an 11 percent market share, followed by Motorola with a 7 percent market share. The top ten suppliers in 1982 accounted for 57 percent of the total market, a slight decrease from 1981 when the top ten suppliers accounted for 58 percent of the total market.

Bipolar Digital Market Shares

Table 6 shows the preliminary estimates of the 1982 worldwide bipolar digital revenues of the 18 leading bipolar digital suppliers in 1982 compared with their 1981 results. These leading bipolar digital suppliers had total shipments of \$2,229 million or 88 percent of the market. As noted earlier, the worldwide bipolar digital market grew by 5.6 percent in 1982. Texas Instruments remained the leading bipolar digital supplier with a 21 percent market share followed by Signetics with a 9 percent market share.

MOS Digital Market Shares

Table 7 shows the preliminary estimates of 1982 digital MOS integrated circuits revenues of the 27 leading MOS suppliers compared with their 1981 results. Their collective shipments were \$4,904 million or 94 percent of the market. Intel remains the leading digital MOS IC supplier with a 10 percent market share, followed closely by NEC with a 9 percent market share, and Motorola with an 8 percent market share.

Linear Integrated Circuit Market Shares

Table 8 shows the preliminary estimates of 1982 linear integrated circuit revenues of the 15 leading linear suppliers compared with their 1981 results. The combined shipments of these suppliers was \$1,834 million, or 66 percent of the worldwide linear market, one which declined 0.4 percent in 1982 versus 1981. Texas Instruments became the leading linear IC supplier in 1982 with a 9 percent market share, followed closely by National Semiconductor with an 8 percent share, and Motorola with a 6 percent share.

Discrete and Optoelectronic Market Shares

Table 9 shows the preliminary estimates of 1982 discrete plus optoelectronic revenues for the 21 leading suppliers compared with their 1981 revenues. These leading suppliers had combined shipments of \$3,081 million or 73 percent of the discrete market. While the worldwide discrete plus optoelectronic market declined 7.2 percent in 1982, individual performances ranged from a 6 percent increase for Telefunken Elektronik to a 34 percent decline for Texas Instruments. The decline recorded by Texas Instruments reflects their decreased participation in the small signal transistor and small signal diode markets. Motorola remains the leading discrete plus optoelectronic supplier with a 10 percent market share, followed by Toshiba with a 7 percent share, and NEC with a 6 percent share.

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Barbara A. Van

company. These ten companies had collective semiconductor revenues of \$7.7 billion, or 52 percent of the total market. The 39 leading semiconductor suppliers had total 1982 shipments of \$12.7 billion, which represented 86 percent of the worldwide semiconductor market in 1982.

Table 4 compares the 1982 worldwide semiconductor revenues with the 1981 semiconductor revenues of these 39 leading suppliers, and shows the year-to-year percent change together with the 1982 and 1981 ranking. Texas Instruments, Motorola, Nippon Electric, Hitachi, and Toshiba were the top five producers, each retaining the same ranking as 1981. The next three positions were held by National Semiconductor, Intel, and Philips, with no changes from their 1981 rankings. Fujitsu jumped into ninth place from eleventh place, and Fairchild retained its tenth place ranking.

The year-to-year growth in total revenues ranges from a growth of 30 percent for Ferranti to a decline of 14 percent for Matsushita and Sanyo. The dollar revenue growth in 1982 for each company depended to a large degree upon its product positioning in the marketplace as well as the currency exchange rates.

Integrated Circuit Market Shares

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Bipolar Digital Market Shares

Table 6 shows the preliminary estimates of the 1982 worldwide bipolar digital revenues of the 18 leading bipolar digital suppliers in 1982 compared with their 1981 results. These leading bipolar digital suppliers had total shipments of \$2,229 million or 88 percent of the market. As noted earlier, the worldwide bipolar digital market grew by 5.6 percent in 1982. Texas Instruments remained the leading bipolar digital supplier with a 21 percent market share followed by Signetics with a 9 percent market share.

MOS Digital Market Shares

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Linear Integrated Circuit Market Shares

Table 8 shows the preliminary estimates of 1982 linear integrated circuit revenues of the 15 leading linear suppliers compared with their 1981 results. The combined shipments of these suppliers was \$1,834 million, or 66 percent of the worldwide linear market, one which declined 0.4 percent in 1982 versus 1981. Texas Instruments became the leading linear IC supplier in 1982 with a 9 percent market share, followed closely by National Semiconductor with an 8 percent share, and Motorola with a 6 percent share.

Discrete and Optoelectronic Market Shares

Table 9 shows the preliminary estimates of 1982 discrete plus optoelectronic revenues for the 21 leading suppliers compared with their 1981 revenues. These leading suppliers had combined shipments of \$3,081 million or 73 percent of the discrete market. While the worldwide discrete plus optoelectronic market declined 7.2 percent in 1982, individual performances ranged from a 6 percent increase for Telefunken Elektronik to a 34 percent decline for Texas Instruments. The decline recorded by Texas Instruments reflects their decreased participation in the small signal transistor and small signal diode markets. Motorola remains the leading discrete plus optoelectronic supplier with a 10 percent market share, followed by Toshiba with a 7 percent share, and NEC with a 6 percent share.

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Barbara A. Van

Table 1

ESTIMATED WORLDWIDE MERCHANT MARKET SEMICONDUCTOR CONSUMPTION
(Millions of U.S. Dollars)

	<u>1981</u>	<u>1982</u>	<u>Percent Change</u>
Integrated Circuits			
Bipolar Digital	\$ 2,391	\$ 2,525	5.6%
MOS	4,639	5,221	12.5%
Linear	<u>2,775</u>	<u>2,765</u>	-0.4%
Total IC	\$ 9,805	\$10,511	7.2%
Discretes	3,837	3,510	-8.5%
Optoelectronics	<u>736</u>	<u>726</u>	-1.4%
Total Semiconductor	\$14,378	\$14,747	2.6%

Source: DATAQUEST
January 1983

Table 2

CHANGES IN SEMICONDUCTOR REVENUES
1982 VERSUS 1981
(Measured in U.S. Dollars)

	<u>U.S. and West European Suppliers</u>	<u>Japanese Suppliers</u>
Integrated Circuits	4.0%	10.2%
Bipolar Digital	0.2%	21.9%
MOS	6.6%	19.6%
MOS Memory	18.0%	35.0%
MOS Logic	2.9%	-6.6%
Linear	3.2%	-7.0%
Discretes	-8.1%	-23.9%
Optoelectronics	2.4%	-1.1%
Total Semiconductor	0.9%	-0.4%

Sources: DATAQUEST
Semiconductor Industry Assn.
Japanese Ministry of Finance
January 1983

Source: DATAQUEST
January 1983

Table 4

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE SEMICONDUCTOR
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

1982 RANK	1981 RANK	COMPANY	1981	1982	% CHANGE
1	1	TEXAS INSTRUMENTS	1,295	1,300	0.39
2	2	MOTOROLA	1,190	1,219	2.44
3	3	NIPPON ELECTRIC	958	992	3.55
4	4	HITACHI	824	799	-3.03
5	5	TOSHIBA	768	739	-3.78
6	6	NATIONAL SEMICONDUCTOR	704	673	-4.40
7	7	INTEL	508	578	13.78
8	8	PHILIPS	482	494	2.49
9	11	FUJITSU	414	481	16.18
10	10	FAIRCHILD	462	412	-10.82
11	9	MATSUSHITA	476	408	-14.29
12	12	SIGNETICS	366	340	-7.10
13	16	AMD	279	329	17.92
14	13	SIEMENS	337	328	-2.67
15	14	MITSUBISHI	321	321	0.00
16	17	GENERAL INSTRUMENT	274	313	14.23
17	15	RCA	293	291	-0.68
18	19	MOSTEK	210	220	4.76
19	21	ITT	175	190	8.57
20	18	SANYO	216	185	-14.35
21	20	THOMSON-CSF	181	184	1.66
22	23	SGS-ATES	160	175	9.38
23	25	AMI	133	160	20.30
24	22	HARRIS	165	153	-7.27
25	24	TELEFUNKEN ELEKTRONIK*	141	150	6.38
26	26	SHARP	125	139	11.20
27	28	OKI	97	123	26.80
28	27	GENERAL ELECTRIC	121	107	-11.57
29	29	ANALOG DEVICES	89	106	19.10
30	31	COMMODORE	85	100	17.65
31	35	SYNERTEK	72	88	22.22
32	33	TRW	77	83	7.79
33	39	FERRANTI	63	82	30.16
34	30	INTERNATIONAL RECTIFIER	86	82	-4.65
35	32	HEWLETT-PACKARD	84	80	-4.76
36	36	ROCKWELL	70	80	14.29
37	34	INTERSIL	75	75	0.00
38	37	UNITRODE	70	75	7.14
39	38	MMI	68	70	2.94
TOTAL:			12,514	12,724	

* FORMERLY AEG-TELEFUNKEN

Source: DATAQUEST
January 1983

Table 5

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE INTEGRATED CIRCUIT
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
TEXAS INSTRUMENTS	1,075	1,155	7.44
MOTOROLA	730	780	6.85
NIPPON ELECTRIC	646	722	11.76
NATIONAL SEMICONDUCTOR	648	620	-4.32
INTEL	508	578	13.78
HITACHI	519	566	9.06
TOSHIBA	424	453	6.84
FUJITSU	374	444	18.72
SIGNETICS	366	340	-7.10
FAIRCHILD	370	333	-10.00
AMD	279	329	17.92
PHILIPS	240	269	12.08
MATSUSHITA	253	237	-6.32
mitsubishi	212	232	9.43
MOSTEK	210	220	4.76
GENERAL INSTRUMENT	160	203	26.88
RCA	192	194	1.04
AMI	133	160	20.30
SIEMENS	155	160	3.23
HARRIS	165	153	-7.27
SANYO	161	141	-12.42
SGS-ATES	110	126	14.55
SHARP	105	123	17.14
OKI	95	120	26.32
ANALOG DEVICES	89	106	19.10
COMMODORE	80	95	18.75
ITT	78	90	15.38
SYNERTEK	72	88	22.22
ROCKWELL	70	80	14.29
MMI	68	70	2.94
TOTAL:	8,587	9,187	

Source: DATAQUEST
January 1983

Table 6

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE BIPOLAR DIGITAL
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
TEXAS INSTRUMENTS	510	520	1.96
SIGNETICS	268	233	-13.06
FAIRCHILD	226	206	-8.85
MOTOROLA	192	190	-1.04
NATIONAL SEMICONDUCTOR	175	165	-5.71
AMD	135	155	14.81
FUJITSU	122	149	22.13
HITACHI	95	111	16.84
NIPPON ELECTRIC	78	85	8.97
NMI	68	70	2.94
HARRIS	78	68	-12.82
PHILIPS	30	57	90.00
SIEMENS	52	56	7.69
MITSUBISHI	38	44	15.79
INTEL	33	38	15.15
FERRANTI	14	32	128.57
TOSHIBA	27	29	7.41
MATSUSHITA	16	21	31.25
TOTAL:	2.157	2.229	

Source: DATAQUEST
January 1983

Table 7

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE MOS
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
INTEL	475	540	13.68
NIPPON ELECTRIC	403	484	20.10
MOTOROLA	372	425	14.25
TEXAS INSTRUMENTS	350	400	14.29
TOSHIBA	267	323	20.97
HITACHI	238	306	28.57
FUJITSU	226	272	20.35
NATIONAL SEMICONDUCTOR	255	235	-7.84
MOSTEK	210	220	4.76
GENERAL INSTRUMENT	148	183	23.65
AMI	133	160	20.30
AMD	121	150	23.97
MITSUBISHI	99	125	26.26
RCA	110	118	7.27
OKI	77	101	31.17
SHARP	82	100	21.95
COMMODORE	80	95	18.75
PHILIPS	70	90	28.57
SYNERTEK	72	88	22.22
MATSUSHITA	83	83	0.00
ROCKWELL	70	80	14.29
ITT	59	70	18.64
SIEMENS	65	64	-1.54
FAIRCHILD	65	50	-23.08
SIGNETICS	36	49	36.11
HARRIS	52	48	-7.69
SGS-ATES	33	45	36.36
TOTAL:	4.251	4.904	

Source: DATAQUEST
January 1983

Table 8

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE LINEAR
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
TEXAS INSTRUMENTS	215	235	9.30
NATIONAL SEMICONDUCTOR	218	220	0.92
MOTOROLA	166	165	-0.60
NIPPON ELECTRIC	165	153	-7.27
HITACHI	186	149	-19.89
MATSUSHITA	154	133	-13.64
PHILIPS	140	122	-12.86
ANALOG DEVICES	89	106	19.10
SANYO	126	106	-15.87
TOSHIBA	130	101	-22.31
FAIRCHILD	79	77	-2.53
SGS-ATES	63	76	20.63
RCA	76	70	-7.89
MITSUBISHI	75	63	-16.00
SIGNETICS	62	58	-6.45
TOTAL:	1.944	1.834	

Source: DATAQUEST
January 1983

Table 9

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE DISCRETE PLUS
OPTOELECTRONIC REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
MOTOROLA	460	439	-4.57
TOSHIBA	344	286	-16.86
NIPPON ELECTRIC	312	270	-13.46
HITACHI	305	233	-23.61
PHILIPS	242	225	-7.02
MATSUSHITA	223	171	-23.32
SIEMENS	182	168	-7.69
TEXAS INSTRUMENTS	220	145	-34.09
THOMSON-CSF	122	122	0.00
GENERAL INSTRUMENT	114	110	-3.51
TELEFUNKEN ELEKTRONIK *	100	106	6.00
GENERAL ELECTRIC	118	104	-11.86
ITT	97	100	3.09
RCA	101	97	-3.96
MITSUBISHI	109	89	-18.35
INTERNATIONAL RECTIFIER	86	82	-4.65
HEWLETT-PACKARD	84	80	-4.76
FAIRCHILD	92	79	-14.13
UNITRODE	70	73	4.29
NATIONAL SEMICONDUCTOR	56	53	-5.36
SGS-ATES	50	49	-2.00
TOTAL:	3.487	3.081	

* FORMERLY AEG-TELEFUNKEN

Source: DATAQUEST
January 1983

Appendix B—Market Share Estimates

An integral part of DATAQUEST's Semiconductor Industry Service data base is the analysis of semiconductor markets through estimation of market share by manufacturer. This analysis provides insights into semiconductor markets and reinforces estimates of consumption, production, and company revenues that were made using other data. Table B-1 gives market share estimates for the total worldwide merchant semiconductor market. Tables B-2, B-26, and B-36 further segment the semiconductor market into integrated circuits, discrete devices, and optoelectronic devices. Each of these categories is divided into a number of subgroups, and some subgroups are further segmented. In general, these product divisions are self-explanatory. The Bipolar Digital and MOS segments are divided both by function and by technology beginning with 1979. The difference between signal and power transistors or diodes is set at the 1-watt power-handling capability level. Special discrete semiconductor devices that are neither transistors, diodes, nor thyristors are categorized as "Other" and shown in Table B-35. An index of all tables is included for easy reference. Tables B-20 through B-25 are not included at this time; however, the space is maintained for future accommodation.

The semiconductor market is divided among U.S. companies, European companies, Japanese companies, and Rest-of-World (ROW) companies based on the location of their main offices. While almost all U.S. semiconductor companies are listed, only the leading European and Japanese companies are included.

Although only a limited number of companies are included in the tables, we keep information on more than 100 companies. When not shown explicitly, their production is included in "Others."

The totals given for U.S. companies reflect worldwide production. For example, Texas Instruments manufactures semiconductors in many parts of the world, and its entire production is included under the U.S. companies' market share section. In contrast, some, but not all, foreign-owned subsidiaries, such as Litronix (Siemens), are included in the U.S. totals and not in the total of the parent company location. A U.S. subsidiary to a foreign company is included in U.S. companies if it maintains its own identity, i.e., carries its own name rather than that of its parent company. A good example of this is Fairchild Semiconductor (Schlumberger). The total for U.S. companies, therefore, is not the same as for U.S. semiconductor consumption or U.S. factory shipments detailed in Tables A-2 and A-7 in Appendix A.

DEFINITIONS AND CONVENTIONS

DATAQUEST utilizes a common basis of companies for all its data tables. This basis includes all non-captive suppliers to the semiconductor market. It excludes captive suppliers that manufacture devices solely for the benefit of the parent company, such as Burroughs, IBM, NCR, and Western Electric, but includes companies that actively market semiconductor devices to industry as well as to

Appendix B—Market Share Estimates

other divisions of their own company. Both external shipments and internal consumption are included for these companies. Value of devices used internally is estimated at current market prices.

Regional Breakdown - Appendix A Definitions and Appendix B Definitions

The criteria used for placing semiconductor revenues in one of the four geographic regions are different in Appendix A, Tables A-1 to A-5; Appendix A, Tables A-6 to A-10; and Appendix B. Consumption, as used in Tables A-1 to A-5, is defined as the purchase of a semiconductor device or devices. This definition must be differentiated from actual use of the device in a final product. Devices that are inventoried at the user level are considered consumption, under our definition, and the values are assigned to the region to which the product was shipped.

The fabrication and assembly of semiconductor devices are often performed in several different locations. For the purposes of this data base, factory shipments, as the term is used in Tables A-6 to A-10, are defined geographically as occurring from that point where the device is tested and marked, irrespective of where the device is assembled or where initial wafer fabrication is performed. In general, factory shipments and production are equated, but devices inventoried at the manufacturer's level are not included in DATAQUEST's basis for factory shipments.

In Appendix B, value of shipments is assigned to the geographic region in which the home base of the company is located regardless of where the device is actually manufactured. For example, consider a device manufactured, tested, and marked at National Semiconductor's Greenock, Scotland plant and shipped to IBM in the United States. Those revenues appear in Table A-2, Estimated North American Semiconductor Consumption, because the part was shipped to IBM in the United States. The revenues appear again in Table A-9, Estimated European Semiconductor Factory Shipments, because Scotland is in Europe. Finally, because National Semiconductor is a U.S.-based company, the revenues appear under "U.S. Companies" in Appendix B.

Hybrid Circuits

Because of prior reporting methods used by the Electronic Industries Association (EIA) and the Japanese Ministry for International Trade and Industry (MITI), hybrid devices are included as a product segment of integrated circuits in the years prior to 1973. This segmentation is somewhat artificial because hybrid devices are primarily a special packaging arrangement. As a result, DATAQUEST has deleted this segment for the years beginning with 1973. However, hybrids are included in the Linear Table, B-22, for principal hybrid suppliers that do wafer fabrication. When the hybrid values are known, they are broken out in a footnote at the bottom of the table.

Appendix B—Market Share Estimates

Exchange Rate Conventions

Estimates of Japanese consumption or factory shipments use the exchange rate (yen/dollar) for the given year. Refer to the footnotes on the tables for the exchange rates used. In viewing the year-to-year Japanese market growth rate, one must take into consideration the different exchange rates in effect during the year. For the European market, the value of shipments is estimated directly in dollars.

DATA SOURCES

There is no official body in the United States or Europe—government organization, industry association, or trade publication—that maintains complete or near complete statistics on the semiconductor industry. In Japan, some statistics are kept by the MITI. It should be clear from the broad scope and detailed breakdown that Appendix B is a major effort. We believe that the estimates presented here are the most accurate and meaningful generally available today. The sources of the data presented in the tables are:

- Unit sales or revenues (or both) published by major industry participants
- Estimates presented by knowledgeable and reliable industry spokespersons
- Government data or trade association data such as SIA, MITI, and EIA
- Published product literature and price lists
- Interviews with knowledgeable manufacturers, distributors, and users
- Relevant projected world economic data

Most estimates have been reviewed by knowledgeable market research analysts from several of the major industry participants, and revisions were made if justified by the additional data that they provided. Thus, these estimates represent a consensus of the industry's own estimates.

CONSISTENCY

One of the key objectives in preparing these estimates is to achieve consistency among the various data elements that constitute the forecast and the past data base. The opportunity to check the numeric value of a directly obtained data element by deriving it indirectly from other data elements through one or more

Appendix B—Market Share Estimates

alternative means, has been of great assistance in assuring the accuracy and consistency of the estimates. Thus, the data in Appendix B are consistent with the market estimates in Appendix A and with the individual company revenue breakdowns presented in Volume III.

ACCURACY

The tables presented here represent estimates by DATAQUEST, which we believe are reasonably accurate. Accordingly, where we have no accurate estimate, one is not given. A blank space in a table indicates the unavailability of a reasonably accurate estimate, whereas a zero in a table represents an estimate.

NEED FOR CAREFUL INTERPRETATION

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, careful attention must be paid to the definitions and assumptions used here when interpreting the estimates presented in these tables. Various companies, government agencies, and trade associations may use slightly different definitions of product categories and regional groupings, or they may include different companies in their summaries. These differences should be kept in mind when making comparisons between these data and those provided by others.

Appendix B—Market Share Estimates

INDEX OF TABLES

<u>Product Segment</u>	<u>Table</u>
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital (Technology)	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
Bipolar Digital (Function) - Same as B-3	B-8
Memory	B-9
Logic	B-10
MOS (Technology)	B-11
PMOS	B-12
NMOS	B-13
CMOS	B-14
MOS (Function) - Same as B-11	B-15
Memory	B-16
Microprocessor	B-17
Logic	B-18
Linear	B-19
Amplifiers	B-20
Voltage Regulators	B-21
Data Conversion	B-22
Interface	B-23
Special Consumer	B-24
Other	B-25
Total Discrete	B-26
Transistor	B-27
Small Signal Transistor	B-28
Power Transistor	B-29
Diode	B-30
Small Signal Diode	B-31
Power Diode	B-32
Zener Diode	B-33
Thyristor	B-34
Other	B-35
Total Optoelectronics	B-36
LED Lamps	B-37
LED Displays	B-38
Optical Couplers	B-39
Other	B-40

Appendix B—Market Share Estimates

Table B-1

TOTAL SEMICONDUCTOR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	5405	4373	5827	6859	8892	11065	14107	14219
US COMPANIES	3365	2796	3519	4079	5123	6726	8508	7886
ADVANCED MICRO DEVICES	28	32	55	82	132	203	282	279
AMERICAN MICROSYSTEMS	74	58	59	68	71	96	117	133
ANALOG DEVICES				26	43	55	75	89
CHERRY SEMICONDUCTOR						4	9	6
CONRORE				8	8	15	19	85
COMMUNICATIONS TRANSISTOR				11	12	15	16	18
ELECTRONIC ARRAYS	18	15	17	14	12	16	20	35
FAIRCHILD	323	234	307	325	358	469	566	462
GENERAL ELECTRIC ³	114	83	107	109	113	129	137	122
GENERAL INSTRUMENT	63	57	106	117	125	202	244	274
GENERAL MOTORS	21	13	13	12	12	15	15	13
GTE MICROCIRCUITS				17	21	28	24	24
HARRIS	37	42	44	60	85	115	185	165
HEWLETT-PACKARD	29	34	43	52	69	85	95	84
HUGHES	11	13	17	23	17	14	21	21
INTEL	115	111	147	200	300	440	575	505
INTERCIL	49	46	59	61	67	92	96	88
INTERNATIONAL RECTIFIER	43	45	49	60	69	79	90	86
ITT	160	120	144	155	165	185	241	199
LITTONIX	21	23	19	15	16	31	34	31
MONOLITHIC MEMORIES	20	18	20	25	34	47	67	68
MORGANTO ³	17	17	21	19	30	0	0	0
MOSEX	48	38	56	83	125	213	330	210
MOTOROLA ²	481	362	462	542	680	919	1120	1175
NATIONAL SEMICONDUCTOR ²	210	215	249	285	376	510	720	704
PRECISION MONOLITHICS			7	12	15	21	32	34
RAYTHEON	42	30	32	33	37	42	44	43
RCA	183	148	174	206	240	276	322	293
ROCKWELL	52	60	50	47	52	70	75	70
SIGMETICS	121	82	125	175	214	265	384	366
SILICONIX	21	23	25	30	45	53	64	60
SOLID STATE SCIENTIFIC ⁴	17	8	17	16	25	26	33	34
SOLITRON	22	16	18	20	21	29	32	28
SPECTRONICS	3	5	7	11	11	15	17	17
SPRAGUE	20	14	20	23	33	43	49	51
STANDARD MICROSYSTEMS				8	10	14	17	18
SUPERTEX							8	12
SYNEXTEK	0	1	5	19	33	45	60	72
TELETYPE	45	30	25	22	21	20	24	24
TEXAS INSTRUMENTS ²	634	520	653	741	921	1212	1580	1293
TRW	33	35	37	43	47	63	75	77
UNITRODE ²	29	25	29	33	42	69	87	70
VARO	21	24	33	36	37	41	45	42
WESTERN DIGITAL	13	7	5	6	6	12	23	27
WESTINGHOUSE	36	29	38	40	47	58	65	59
SILOG				3	8	20	32	40
OTHERS	181	161	223	186	318	343	322	278

Continued

Appendix B—Market Share Estimates

Table B-1 (Continued)

TOTAL SEMICONDUCTOR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
JAPANESE COMPANIES	1130	844	1428	1738	2484	2767	3759	4697
FUJITSU				89	124	210	419	465
HITACHI	178	198	267	279	465	468	658	824
MATSUSHITA	138	108	177	192	254	237	319	456
MITSUBISHI	72	56	126	139	147	195	254	326
NIIPPON ELECTRIC	200	211	314	369	518	579	767	958
OKI								
SANYO					120	148	180	216
TOSHIBA	167	134	236	263	401	442	629	768
OTHERS	365	137	308	407	455	488	533	684
EUROPEAN COMPANIES	881	729	868	1028	1267	1547	1805	1591
AGC-TELEFUNKEN	55	48	55	87	111	160	180	141
FERRANTI				23	27	33	48	63
PHILIPS ²	340	275	325	355	431	500	553	482
PLESSEY				21	30	42	52	49
SGS-ATES	83	56	55	84	100	120	154	160
SIEMENS	144	151	215	249	292	361	423	337
THOMSON-CSF	80	74	82	93	130	152	179	156
OTHERS	179	125	136	116	146	179	216	203
REST OF WORLD	38	4	12	14	18	25	35	45
MIL	32	4	0	0	0	0	0	0
OTHERS	6	0	12	14	18	25	35	45

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²Totals include the following estimated amounts of hybrid ICs: Motorola (1979, 1980) - \$15 million and \$18 million; NEC (1979, 1980)-\$40 million and \$46 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980)-\$55 million and \$66 million.

³In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

⁴In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-2

TOTAL INTEGRATED CIRCUIT MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	2510	2120	2941	3698	5259	7006	9698	9748
US COMPANIES	1880	1569	2068	2591	3449	4702	6384	5944
ADVANCED MICRO DEVICES	28	32	55	82	132	203	282	279
AMERICAN MICROSYSTEMS	74	58	59	68	71	96	117	133
ANALOG DEVICES				26	43	55	75	89
CERRY SEMICONDUCTOR						4	9	6
COMMODORE				8	8	25	19	80
ELECTRONIC ARRAYS	18	15	17	14	12	16	20	35
FAIRCHILD	212	144	204	236	253	353	461	370
GENERAL ELECTRIC	0	0	0	0	2	3	3	3
GENERAL INSTRUMENT	32	32	73	77	75	96	126	160
GTE MICROCIRCUITS				17	21	28	24	24
HARRIS	37	42	44	60	85	115	185	165
HUGHES	11	13	17	23	17	14	21	21
INTEL	115	111	147	200	300	440	575	505
INTERCIL	46	43	55	55	61	85	89	79
ITT	58	40	47	62	70	85	125	107
LITRONIX	2	4	3	0	0	0	0	0
MONOLITHIC MEMORIES	20	18	20	25	34	47	87	68
MOSTEK	48	38	56	83	125	213	330	210
MOTOROLA ²	168	120	172	227	329	500	690	725
NATIONAL SEMICONDUCTOR ²	174	168	203	248	330	450	657	648
PRECISION MONOLITHICS			7	12	15	21	32	34
RAYTHEON	28	19	20	20	24	28	30	29
RCA	108	70	83	108	127	150	187	192
ROCKWELL	52	60	50	47	52	70	75	70
SIGNETICS	121	82	125	175	214	265	384	366
SILICONIX	9	14	14	17	30	34	46	35
SOLID STATE SCIENTIFIC	11	4	12	11	18	26	33	34
SOLITRON	6	6	5	5	5	6	6	5
SPRAGUE	14	10	14	17	27	38	44	46
STANDARD MICROSYSTEMS				8	10	14	17	18
SUPERTEX							5	8
SYNERTX	0	1	5	19	33	45	60	72
TELEDYNE	16	11	9	7	9	11	15	15
TEXAS INSTRUMENTS ²	374	300	421	514	679	952	1305	1075
TRW	2	8	6	9	10	18	28	28
UNITRODE ²	0	0	0	0	2	9	17	0
WESTERN DIGITAL	13	7	5	6	6	12	23	27
SILOG				3	8	20	32	40
OTHERS	83	97	120	112	212	165	140	143
JAPANESE COMPANIES	382	343	605	748	1313	1655	2473	3013
FUJITSU	0	0	0	60	91	175	380	425
Hitachi	74	83	120	127	259	284	410	519
MATSUSHITA	25	22	40	60	86	103	149	238
MITSUBISHI	26	25	50	54	70	126	174	221
NIPPON ELECTRIC	104	107	153	187	299	364	533	646
OKI					88	111	136	161
SANYO								
TOSHIBA	49	49	90	111	189	220	332	388
OTHERS	104	57	152	149	231	272	359	415
EUROPEAN COMPANIES	210	204	260	349	483	634	816	756
AGC-TELEFUNKEN	11	10	12	16	23	32	41	41
FERRANTI				13	16	20	30	49
PHILIPS ²	60	75	100	111	165	215	253	240
PLESSEY				15	23	34	44	42
SGS-ATES	23	23	25	49	59	74	106	110
SIEMENS	49	48	75	82	106	152	198	155
THOMSON-CSF	19	14	17	20	30	32	39	29
OTHERS	48	34	31	43	61	75	105	90
REST OF WORLD	38	4	8	10	14	15	25	35
MIL	32	4	0	0	0	0	0	0
OTHERS	6	0	8	10	14	15	25	35

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.6; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²Totals include the following estimated amounts of hybrid ICs: Motorola (1979, 1980) - \$15 million and \$18 million; NSC (1979, 1980)-\$40 million and \$46 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980)-\$55 million and \$66 million.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-3

BIPOLAR DIGITAL MARKET SHARE ESTIMATES - TECHNOLOGY¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	944	663	865	1026	1315	1664	2309	2338
TOTAL MARKET	777	524	680	806	1023	1328	1918	1763
US COMPANIES	777	524	680	806	1023	1328	1918	1763
ADVANCED MICRO DEVICES	14	14	21	35	47	81	122	135
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	1	1	0	0	0
CHEVRON SEMICONDUCTOR	0	0	0	0	0	2	4	0
COMMODORE	0	0	0	0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FALCON	139	74	106	116	141	198	273	226
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	17	16	15	26	36	48	90	78
HUGHES	3	3	2	4	3	0	0	0
INTEL	15	12	15	15	17	21	27	30
INTERCIL	15	10	12	10	7	10	12	7
ITT	34	20	19	23	25	30	42	35
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	20	18	20	25	34	47	87	68
MOSEK	0	0	0	0	0	0	0	0
MOTOROLA	85	48	58	68	90	112	135	185
NATIONAL SEMICONDUCTOR	70	48	69	80	117	130	184	175
PRECISION MONOLITHICS	0	0	0	0	0	0	0	0
RAYTHEON	14	9	9	8	10	11	12	11
RCA	0	0	0	0	0	2	5	6
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	86	55	85	110	132	175	286	268
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	4	3	1	1	1	2	2	1
SPRAGUE	5	4	5	0	0	0	0	0
STANDARD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
SYNERTEK	0	0	0	0	0	0	0	0
TELETYPE	9	5	4	3	4	4	4	4
TEXAS INSTRUMENTS	234	145	215	242	306	422	598	510
TSM	2	1	1	2	3	4	4	4
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
WILLOG	0	0	0	0	0	0	0	0
OTHERS	11	39	23	37	49	29	29	20
JAPANESE COMPANIES	91	64	99	129	194	217	309	411
FUJITSU	0	0	0	34	47	54	81	94
HITACHI	19	18	18	21	38	45	73	95
MATSUSHITA	2	1	2	6	10	11	13	16
MITSUBISHI	11	7	19	12	15	20	29	45
NIIPPON ELECTRIC	25	16	19	27	39	35	54	78
OKI	0	0	0	0	0	0	0	0
SANYO	0	6	8	11	8	9	12	14
TOSHIBA	0	0	0	0	0	0	0	0
OTHERS	26	16	33	18	32	37	37	57
EUROPEAN COMPANIES	70	75	80	85	92	114	166	156
AGC-TELEFUNKEN	0	0	0	0	0	0	0	0
FERDINAND	0	0	0	3	4	5	9	14
PHILIPS	4	3	4	4	5	7	15	30
PLESSEY	0	0	0	5	8	12	14	13
SGS-ATES	4	2	4	6	8	10	20	17
SIMENS	27	48	53	42	31	52	64	52
THOMSON-CSF	0	1	1	1	2	2	3	2
OTHERS	35	21	18	24	34	26	41	28
BEST OF WORLD	6	0	6	6	6	5	6	8
NEC	0	0	0	0	0	0	0	0
OTHERS	6	0	6	6	6	5	6	8

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-4

TTL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	695	484	682	826	1041	1391	2072	1995
US COMPANIES	605	392	563	670	836	1143	1704	1562
ADVANCED MICRO DEVICES	14	14	21	35	47	81	122	135
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	1	1	0	0	0
CHERRY SEMICONDUCTOR	0	0	0	0	0	0	0	0
COMMODORE	0	0	0	0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	105	53	80	83	105	156	228	186
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	12	12	12	24	35	47	89	77
HUGHES	3	3	2	4	3	0	0	0
INTEL	15	12	15	15	17	21	27	30
INTERCIL	14	10	12	10	7	10	12	7
ITT	26	15	6	12	15	20	31	26
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	20	18	20	25	34	47	87	68
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	36	15	19	24	31	46	55	85
NATIONAL SEMICONDUCTOR	67	48	69	80	117	130	182	172
PRECISION MONOLITHICS	0	0	0	0	0	0	0	0
RAYTHEON	10	7	9	8	10	11	12	11
RCA	0	0	0	0	0	2	5	6
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	76	47	79	100	122	163	270	256
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	3	3	4	0	0	0	0	0
STANDARD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	1	0
SYNERTEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	202	120	187	223	286	400	575	495
TRW	2	1	1	2	3	4	4	4
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
XILOG	0	0	0	0	0	0	0	0
OTHERS	0	14	17	24	3	5	4	4
JAPANESE COMPANIES	40	38	64	86	129	153	229	308
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	0	0	0	0	0	0	0	0
MITSUBISHI	0	0	0	0	0	0	0	0
MITSUBISHI	0	0	0	0	0	0	0	0
NIPPON ELECTRIC	0	0	0	0	0	0	0	0
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0
EUROPEAN COMPANIES	50	54	59	64	70	90	133	117
AEG-TELEFUNKEN	0	0	0	0	0	0	0	0
FERRANTI	0	0	0	0	0	0	0	0
PHILIPS	0	0	0	0	0	0	0	0
PLESSEY	0	0	0	0	0	0	0	0
RDS-ATES	0	0	0	0	0	0	0	0
SIEMENS	0	0	0	0	0	0	0	0
THOMSON-CSF	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0
REST OF WORLD	0	0	6	6	6	5	6	8
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	6	6	6	5	6	8

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-5

DTL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	103	83	71	56	56	49	47	34
TOTAL MARKET								
US COMPANIES	81	65	55	39	36	31	30	19
ADVANCED MICRO DEVICES	0	0	0	0	0	0	0	0
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	0	0	0	0	0
CHERY SEMICONDUCTOR	0	0	0	0	0	0	0	0
COMMODORE	0	0	0	0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	27	14	15	12	10	8	9	5
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS	0	0	0	0	0	0	0	0
HARRIS	5	4	3	2	1	1	1	1
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
ITT	8	5	4	2	1	1	2	1
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	10	10	13	9	9	9	7	7
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
PRECISION MONOLITHICS	0	0	0	0	0	0	0	0
RAYTHEON	4	2	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGMETICS	8	6	4	4	4	3	4	1
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	2	1	1	0	0	0	0	0
STANDARD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPERTEK	0	0	0	0	0	0	0	0
SYNEXTEK	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	13	15	15	10	9	7	5	2
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
XILOG	0	0	0	0	0	0	0	0
OTHERS	4	8	0	0	2	2	2	2
JAPANESE COMPANIES	12	8	6	7	9	7	4	3
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	10	10	10	10	11	11	13	12
AGC-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
NIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-6

ECL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	72	58	76	98	140	159	196	235
TOTAL MARKET								
US COMPANIES	50	34	39	59	82	102	119	130
ADVANCED MICRO DEVICES	0	0	0	0	0	0	0	0
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES	0	0	0	0	0	0	0	0
CHEVRON SEMICONDUCTOR	0	0	0	0	0	0	0	0
COMMODORE	0	0	0	0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	3	3	8	18	23	30	32	31
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROELECTRONICS	0	0	0	0	0	0	0	0
HARRIS	0	0	0	0	0	0	0	0
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERMIL	1	0	0	0	0	0	0	0
ITT	0	0	0	0	0	0	0	0
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSEK	0	0	0	0	0	0	0	0
MOTOROLA	31	19	18	30	43	50	65	85
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	2	3
PRECISION MONOLITHICS	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGMETICS	2	2	2	4	6	9	12	11
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS	0	0	0	0	0	0	0	0
SUPERTEK	0	0	0	0	0	0	0	0
SYNEXTEK	0	0	0	0	0	0	0	0
TELETYPE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	12	10	5	5	8	10	5	0
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
ZILOG	0	0	0	0	0	0	0	0
OTHERS	1	0	6	2	2	3	3	0
JAPANESE COMPANIES	14	15	28	30	49	46	60	80
FUJITSU								
NEC								
MATSUMITA								
MITSUBISHI								
DAIICHI ELECTRIC								
DAI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	9	9	9	9	9	11	17	25
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-7

OTHER BIPOLAR DIGITAL MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	74	38	36	46	78	65	84	74
TOTAL MARKET								
US COMPANIES	41	33	33	38	69	52	65	52
ADVANCED MICRO DEVICES	0	0	0	0	0	0	0	0
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES				0	0	0	0	0
CERITY SEMICONDUCTOR						2	4	0
COMMODORE				0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	4	4	3	3	3	4	4	4
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS				0	0	0	0	0
HARRIS	0	0	0	0	0	0	0	0
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERMIL	0	0	0	0	0	0	0	0
ITT	0	0	9	9	9	9	9	8
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	0	0	0	0	0	0	0	0
MOTOROLA	8	4	8	5	7	7	8	8
NATIONAL SEMICONDUCTOR	3	0	0	0	0	0	0	0
PRECISION MONOLITHICS			0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
ROCKWELL	0	0	0	0	0	0	0	0
SIGMETICS	0	0	0	2	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	4	3	1	1	1	2	2	1
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS				0	0	0	0	0
SUPERTEX							1	0
SYNERTEX	0	0	0	0	0	0	0	0
TELEDYNE	9	5	4	3	4	4	4	4
TEXAS INSTRUMENTS	7	0	8	4	3	5	13	13
TWM	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
SILOG				0	0	0	0	0
OTHERS	6	17	0	11	42	19	20	14
JAPANESE COMPANIES	25	3	1	6	7	11	16	20
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	2	2	2	2	2	3	2
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SES-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	6	0	0	0	0	0	0	0
MLL	0	0	0	0	0	0	0	0
OTHERS	6	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-8

BIPOLAR DIGITAL MARKET SHARE ESTIMATES - FUNCTION¹
(Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	944	663	665	1026	1315	1664	2309	2336
US COMPANIES	777	524	680	806	1023	1328	1918	1763
ADVANCED MICRO DEVICES	14	14	21	35	47	81	122	135
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES				1	1	0	0	0
CISCO SEMICONDUCTOR					0	2	4	0
CONVOCORE				0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FALCHILD	139	74	106	116	141	198	273	226
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GTE MICROCIRCUITS				0	0	0	0	0
HARRIS	17	16	15	26	26	46	90	78
HUGHES	3	3	2	4	3	0	0	0
INTEL	15	12	15	25	17	21	27	30
INTERGIL	15	10	12	10	7	10	12	7
ITT	34	20	19	23	25	30	42	35
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	20	18	20	25	34	47	87	68
MOSEK	0	0	0	0	0	0	0	0
MOTOROLA	85	48	54	68	90	112	135	185
NATIONAL SEMICONDUCTOR	70	48	69	80	117	130	184	175
PRECISION MONOLITHICS			0	0	0	0	0	0
RAYTHEON	14	9	9	8	10	11	12	11
RCA	0	0	0	0	0	2	5	6
ROCKWELL	0	0	0	0	0	0	0	0
SIOMETICS	86	55	85	110	132	175	286	268
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	4	3	1	1	1	2	2	1
SPRAGUE	5	4	5	0	0	0	0	0
STANDARD MICROSYSTEMS				0	0	0	0	0
SUPERTEX							2	0
SYNERTEX	0	0	0	0	0	0	0	0
TELETYPE	9	5	4	3	4	4	4	4
TEXAS INSTRUMENTS	234	145	215	242	206	422	598	510
TSA	2	1	1	2	3	4	4	4
UNITRONIC	0	0	0	0	0	0	0	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
SILOG				0	0	0	0	0
OTHERS	11	39	23	37	49	29	29	20
JAPANESE COMPANIES	91	64	99	129	194	217	309	411
FUJITSU				34	47	54	81	94
HITACHI	19	18	18	21	28	45	73	95
MATSUSHITA	2	1	2	6	10	11	13	16
NISSAN	11	7	19	12	15	20	29	45
NISSAN ELECTRIC	25	16	19	27	39	35	54	78
OKI								
SANYO					5	6	10	12
SONY	0	6	8	11	8	9	12	14
OTHERS	26	16	33	18	32	37	37	57
EUROPEAN COMPANIES	70	75	80	85	92	114	166	156
AGS-TELEFUNKEN	0	0	0	0	0	0	0	0
FERRANTI				3	4	5	9	14
PHILIPS	4	3	4	4	5	7	15	30
PLESSEY				5	8	12	14	13
SGS-ATES	4	2	4	6	8	10	20	17
SIEMENS	27	46	53	42	31	52	64	52
THOMPSON-CSF	0	1	1	1	2	2	3	2
OTHERS	35	21	18	24	34	26	41	28
REST OF WORLD	6	0	6	6	6	5	6	8
NEC	0	0	0	0	0	0	0	0
OTHERS	6	0	6	6	6	5	6	8

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-9

BIPOLAR DIGITAL MEMORY MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
TOTAL MARKET	327	575	560
US COMPANIES	273	500	456
ADVANCED MICRO DEVICES	21	40	45
AMERICAN MICROSYSTEMS	0	0	0
ANALOG DEVICES	0	0	0
CHERRY SEMICONDUCTOR	0	0	0
COMMODORE	0	0	0
ELECTRONIC ARRAYS	0	0	0
FAIRCHILD	62	73	64
GENERAL ELECTRIC	0	0	0
GENERAL INSTRUMENT	0	0	0
GTE MICROCIRCUITS	0	0	0
HARRIS	33	60	50
HUGHES	0	0	0
INTEL	11	16	25
INTERCIL	9	11	7
ITT	0	0	0
LITRONIX	0	0	0
MONOLITHIC MEMORIES	30	55	40
MOSTEK	0	0	0
MOTOROLA	16	22	20
NATIONAL SEMICONDUCTOR	15	24	25
PRECISION MONOLITHICS	0	0	0
RAYTHEON	2	6	5
RCA	0	0	0
ROCKWELL	0	0	0
SIGNETICS	51	127	120
SILICONIX	0	0	0
SOLID STATE SCIENTIFIC	0	0	0
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	0	0	0
SUPERTEK	0	1	0
SYNTEK	0	0	0
TELEDYNE	0	0	0
TEXAS INSTRUMENTS	14	55	50
TWA	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	0	0	0
SILOG	0	0	0
OTHERS	9	10	5
JAPANESE COMPANIES	51	70	100
FUJITSU	17	26	43
HITACHI	11	16	25
MATSUSHITA	0	0	1
MITSUBISHI	0	0	0
NIPPON ELECTRIC	13	18	18
ONI	0	0	0
SANYO	4	8	9
TOSHIBA	0	0	0
OTHERS	6	2	4
EUROPEAN COMPANIES	3	5	4
AEG-TELEFUNKEN	0	0	0
FERRANTI	0	0	0
PHILIPS	0	0	0
PLESSEY	0	1	1
SGS-ATES	0	0	0
SIEMENS	2	2	2
THOMSON-CSF	0	0	0
OTHERS	1	2	1
REST OF WORLD	0	0	0
MIL	0	0	0
OTHERS	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-10

BIPOLAR DIGITAL LOGIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
	1979	1980	1981
TOTAL MARKET	1334	1824	1778
US COMPANIES	1055	1418	1307
ADVANCED MICRO DEVICES	60	82	90
AMERICAN MICROSYSTEMS	0	0	0
ANALOG DEVICES	0	0	0
CERRY SEMICONDUCTOR	2	4	0
COMMODORE	0	0	0
ELECTRONIC ARRAYS	0	0	0
FAIRCHILD	136	200	162
GENERAL ELECTRIC	0	0	0
GENERAL INSTRUMENT	0	0	0
GTE MICROELECTRICS	0	0	0
HARRIS	15	30	28
HUGHES	0	0	0
INTEL	10	11	5
INTERMIL	1	1	0
ITT	30	42	35
LITRONIX	0	0	0
MONOLITHIC MEMORIES	17	32	28
MOSTEK	0	0	0
MOTOROLA	96	113	165
NATIONAL SEMICONDUCTOR	115	160	150
PRECISION MONOLITHICS	0	0	0
RAYTHEON	9	6	6
RCA	2	5	6
ROCKWELL	0	0	0
SIGMETICS	124	159	148
SILICONIX	0	0	0
SOLID STATE SCIENTIFIC	0	0	0
SOLITRON	2	2	1
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	0	0	0
SUPERTEX	0	1	0
SYNERTEX	0	0	0
TELEDYNE	4	4	4
TEXAS INSTRUMENTS	408	543	460
TRW	4	4	4
UNITRODE	0	0	0
WESTERN DIGITAL	0	0	0
ZILOG	0	0	0
OTHERS	20	19	15
JAPANESE COMPANIES	146	239	311
FUJITSU	37	55	51
HITACHI	34	57	70
MATSUMITA	11	13	15
MITSUBISHI	20	29	45
NIPPON ELECTRIC	22	36	60
OCI	0	0	0
SANYO	2	2	2
TOSHIBA	9	12	14
OTHERS	31	35	54
EUROPEAN COMPANIES	108	161	152
ABC-TELEFUNKEN	0	0	0
FERRANTI	5	9	14
PHILIPS	7	15	30
PLESSEY	12	13	12
SGS-ATES	10	20	17
SIMENS	50	62	50
THOMSON-CSF	2	3	2
OTHERS	22	39	27
REST OF WORLD	5	6	8
ALL	0	0	0
OTHERS	5	6	8

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-11

MOS MARKET SHARE ESTIMATES - TECHNOLOGY¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	890	847	1239	1575	2385	3394	4888	6637
US COMPANIES	687	656	945	1203	1640	2366	3253	2914
ADVANCED MICRO DEVICES	8	12	25	37	71	104	139	121
AMERICAN MICROSYSTEMS	74	58	59	68	71	96	117	133
ANALOG DEVICES				0	0	0	0	0
CHERRY SEMICONDUCTOR						0	0	0
CONVOCORE				8	8	15	19	80
ELECTRONIC ARRAYS	18	15	17	14	12	16	20	35
FAIRCHILD	20	22	35	58	52	77	105	65
GENERAL ELECTRIC	0	0	0	0	2	3	3	3
GENERAL INSTRUMENT	29	29	68	72	68	90	120	148
GTE MICROELECTRONICS				17	21	28	24	24
HARRIS	7	12	16	12	18	30	61	52
HUGHES	8	10	15	19	14	14	21	21
INTEL	100	99	132	185	283	419	548	475
INTERMIL	23	26	36	33	35	45	39	28
ITT	3	2	5	12	15	23	43	29
LITRONIX	2	6	3	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSTEK	48	38	54	83	125	213	330	210
MOTOROLA	23	24	55	92	143	265	415	380
NATIONAL SEMICONDUCTOR	40	50	67	80	95	150	265	255
PRECISION MONOLITHICS			0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	58	29	45	61	69	84	115	110
ROCKWELL	52	60	50	47	52	70	75	70
SIGNETICS	11	10	12	25	32	35	40	36
SILICONIX	5	7	6	8	10	10	19	12
SOLID STATE SCIENTIFIC	11	4	12	11	18	26	33	34
SOLITRON	2	1	2	2	2	2	2	2
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS				8	10	14	17	18
SUPERTEX							3	8
SYNERTEX	0	1	5	19	33	45	60	72
TELEDYNE	0	1	2	2	3	5	9	9
TEXAS INSTRUMENTS	88	100	135	180	238	360	502	350
TRW	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	13	7	5	6	6	12	23	27
WILCOX			0	3	8	20	32	40
OTHERS	44	33	82	41	126	95	54	67
JAPANESE COMPANIES	144	159	257	299	605	836	1354	1466
FUJITSU				21	38	113	287	305
HITACHI	38	43	43	62	139	147	213	238
MATSUSHITA	4	5	7	10	21	35	57	75
MITSUBISHI	6	11	19	24	25	69	86	96
NISSAN ELECTRIC	42	54	74	98	183	231	348	403
OKI								
SANYO					13	18	21	23
TOSHIBA	20	24	35	41	88	135	219	230
OTHERS	34	22	59	43	98	88	125	96
EUROPEAN COMPANIES	27	28	35	71	132	182	263	237
AGS-TELEFUNKEN	6	6	5	6	7	10	13	12
FERVANTI				2	2	4	6	10
PHILIPS				5	30	48	80	70
PLESSEY				2	3	5	7	7
SGS-ATES	8	8	10	14	18	22	37	36
SIEMENS			10	25	50	65	86	65
THOMSON-CSF	0	1	2	4	5	0	0	0
OTHERS	13	13	8	13	17	20	34	37
REST OF WORLD	32	4	2	2	8	10	16	20
MIL	32	4	0	0	0	0	0	0
OTHERS	0	0	2	2	8	10	16	20

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.3; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-12

PMOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
TOTAL MARKET	482	459	383
US COMPANIES	316	308	244
ADVANCED MICRO DEVICES	0	0	0
AMERICAN MICROSYSTEMS	38	35	24
ANALOG DEVICES	0	0	0
CHERRY SEMICONDUCTOR	0	0	0
COMMODORE	0	0	0
ELECTRONIC ARRAYS	0	0	0
FAIRCHILD	15	18	10
GENERAL ELECTRIC	0	0	0
GENERAL INSTRUMENT	30	35	36
GTE MICROCIRCUITS	0	0	0
HARRIS	0	0	0
HUGHES	1	1	1
INTEL	0	0	0
INTERCIL	0	0	0
ITT	4	4	3
LITRONIX	0	0	0
MONOLITHIC MEMORIES	0	0	0
MOSTEK	16	10	0
MOTOROLA	0	0	0
NATIONAL SEMICONDUCTOR	10	15	10
PRECISION MONOLITHICS	0	0	0
RAYTHEON	0	0	0
RCA	0	0	0
ROCKWELL	38	40	38
SIGNETICS	10	7	2
SILICONIX	0	0	0
SOLID STATE SCIENTIFIC	2	4	0
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	0	0	0
SUPERTEX	0	0	0
SYNERTEK	0	0	0
TELEDYNE	0	0	0
TEXAS INSTRUMENTS	110	120	100
TRW	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	2	0	0
ZILOG	0	0	0
OTHERS	46	19	20
JAPANESE COMPANIES	133	120	110
FUJITSU	10	12	8
HITACHI	8	12	14
MITSUBISHI	12	15	18
MITSUBISHI	12	12	9
NIPPON ELECTRIC	25	28	30
ONC	0	0	0
SANYO	6	5	4
TOSHIBA	15	18	20
OTHERS	57	18	7
EUROPEAN COMPANIES	30	26	26
AGG-TELEFUNKEN	0	0	0
FERRANTI	0	0	0
PHILIPS	0	0	0
PLESSEY	0	0	0
SGS-ATES	0	0	0
SIEMENS	0	0	0
THOMSON-CSF	0	0	0
OTHERS	0	0	0
REST OF WORLD	3	3	3
MIL	0	0	0
OTHERS	3	3	3

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-13

NMOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
TOTAL MARKET	2262	3469	3242
US COMPANIES	1615	2344	2066
ADVANCED MICRO DEVICES	104	139	121
AMERICAN MICROSYSTEMS	25	44	67
ANALOG DEVICES	0	0	0
CERITY SEMICONDUCTOR	0	0	0
COMMODORE	15	19	74
ELECTRONIC ARRAYS	16	20	35
FAIRCHILD	45	55	35
GENERAL ELECTRIC	3	3	3
GENERAL INSTRUMENT	60	85	112
GTE MICROCIRCUITS	28	24	24
HARRIS	0	0	0
HUGHES	0	0	0
INTEL	418	545	475
INTERMIL	15	14	6
ITT	17	36	23
LITRONIX	0	0	0
MONOLITHIC MEMORIES	0	0	0
MOSTEK	194	307	192
MOTOROLA	160	240	225
NATIONAL SEMICONDUCTOR	100	190	165
PRECISION MONOLITHICS	0	0	0
RAYTHEON	0	0	0
RCA	0	0	0
ROCKWELL	32	35	32
SIGNETICS	25	33	34
SILICONIX	10	19	12
SOLID STATE SCIENTIFIC	2	5	1
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	10	12	12
SUPERTEK	0	1	0
SYNTEK	45	60	72
TELEDYNE	5	9	9
TEXAS INSTRUMENTS	242	374	240
TRW	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	10	23	27
ZILOG	20	32	40
OTHERS	14	20	30
JAPANESE COMPANIES	510	922	995
FUJITSU	92	257	274
HITACHI	94	136	134
MATSUSHITA	27	27	39
MITSUBISHI	53	66	77
NISSAN ELECTRIC	171	270	308
OKI	9	11	12
SANYO	30	66	70
TOSHIBA	61	99	81
OTHERS	0	0	0
EUROPEAN COMPANIES	137	203	181
AEG-TELEFUNKEN			
FERRANTI			
PHILIPS			
PLESSEY			
SIS-ATES			
SIEMENS			
THOMSON-CSF			
OTHERS			
REST OF WORLD	0	0	0
MIL	0	0	0
OTHERS	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.6; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-14

CMOS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
	650	960	1012
TOTAL MARKET			
US COMPANIES	435	601	604
ADVANCED MICRO DEVICES	0	0	0
AMERICAN MICROSYSTEMS	33	38	42
ANALOG DEVICES	0	0	0
CERREY SEMICONDUCTOR	0	0	0
CINEMORE	0	0	6
ELECTRONIC ARRAYS	0	0	0
FAIRCHILD	17	32	20
GENERAL ELECTRIC	0	0	0
GENERAL INSTRUMENT	0	0	0
GTE MICROCIRCUITS	0	0	0
HARRIS	30	61	52
HUGHES	13	20	20
INTEL	1	3	0
INTERCIL	30	25	22
ITT	2	3	3
LITRONIX	0	0	0
MONOLITHIC MEMORIES	0	0	0
MOSTEK	9	13	18
MOTOROLA	105	175	155
NATIONAL SEMICONDUCTOR	40	60	80
PRECISION MONOLITHICS	0	0	0
RAYTHEON	0	0	0
RCA	84	115	110
ROCKWELL	0	0	0
SIGNETICS	0	0	0
SILICONIX	0	0	0
SOLID STATE SCIENTIFIC	22	24	33
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	4	5	6
SUPERTEX	0	2	8
SYNERTEX	0	0	0
TELETYPE	0	0	0
TEXAS INSTRUMENTS	8	8	10
TIW	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	0	0	0
XLIC	0	0	0
OTHERS	37	17	19
JAPANESE COMPANIES	193	314	361
FIATISU	11	18	23
RIYACHI	45	75	90
MATSUSHITA	0	15	18
MITSUBISHI	4	8	10
NIFFON ELECTRIC	35	50	65
OKI			
SANYO	3	5	7
TOSHIBA	90	135	140
OTHERS	5	8	8
EUROPEAN COMPANIES	15	32	30
AEG-TELEFUNKEN			
FERRANTI			
PHILIPS			
PLESSEY			
BGS-ATES			
SIEMENS			
THOMSON-CSF			
OTHERS			
REST OF WORLD	7	13	17
MIL	0	0	0
OTHERS	7	13	17

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.6; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-15

MOS MARKET SHARE ESTIMATES - FUNCTION¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	890	847	1239	1575	2185	3194	4088	4637
TOTAL MARKET								
US COMPANIES	687	656	945	1203	1640	2366	3253	2914
ADVANCED MICRO DEVICES	8	12	25	37	71	104	139	121
AMERICAN MICROSYSTEMS	74	58	59	68	71	96	117	133
ANALOG DEVICES				0	0	0	0	0
CHENY SEMICONDUCTOR						0	0	0
COMMODORE				8	8	15	19	80
ELECTRONIC ARRAYS	18	15	17	14	12	16	20	35
FAIRCHILD	20	22	35	58	52	77	105	65
GENERAL ELECTRIC	0	0	0	0	2	3	3	3
GENERAL INSTRUMENT	29	29	68	72	68	90	120	148
GTE MICROCIRCUITS				17	21	28	24	24
HARRIS	7	12	16	12	18	30	61	52
HUGHES	8	10	15	19	14	14	21	21
INTEL	100	99	132	185	283	419	548	475
INTERILL	23	26	26	33	35	45	39	28
ITT	3	2	5	12	15	23	43	29
LITRONIX	2	6	3	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOSEK	48	38	56	83	125	213	330	210
MOTOROLA	23	24	55	92	143	265	415	380
NATIONAL SEMICONDUCTOR	40	50	67	80	95	150	265	255
PRECISION MONOLITHICS			0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
NCA	58	29	45	61	69	84	115	110
ROCKWELL	52	60	50	47	52	70	75	70
SIGMETICS	11	10	12	25	32	35	40	36
SILICONIX	5	7	6	8	10	10	19	12
SOLID STATE SCIENTIFIC	11	4	12	11	18	26	33	34
SOLITRON	2	1	2	2	2	2	2	2
SPRAGUE	0	0	0	0	0	0	0	0
STANDARD MICROSYSTEMS				8	10	14	17	18
SUPERTEX							3	8
STEREOTEX	0	1	5	19	33	45	60	72
TELEDYNE	0	1	2	2	3	5	9	9
TEXAS INSTRUMENTS	88	100	135	180	238	360	502	350
TRM	0	0	0	0	0	0	0	0
UNITRODE	0	0	0	0	0	0	0	0
WESTERN DIGITAL	13	7	5	6	6	12	23	27
XILAC				3	8	20	32	40
OTHERS	44	33	62	41	126	95	54	67
JAPANESE COMPANIES	144	159	257	289	605	836	1356	1466
FUJITSU				21	38	113	287	305
HITACHI	28	43	63	62	139	147	213	238
MATSUBISHI	4	5	7	10	21	35	57	75
MITSUBISHI	6	11	19	24	25	69	86	96
NIIPPON ELECTRIC	42	54	74	98	183	231	348	403
OKI								
SANYO					13	18	21	23
TOHIBA	20	24	35	41	88	135	219	230
OTHERS	24	22	59	43	98	88	125	94
EUROPEAN COMPANIES	27	28	35	71	132	182	263	237
ADG-TELEFUNKEN	6	6	5	6	7	10	13	12
FERROVANTI				2	2	4	6	10
PHILIPS				5	30	48	80	70
PLESSEY				2	3	5	7	7
SGS-ATES	6	8	10	14	18	22	37	36
SIEMENS			10	25	50	65	86	65
THOMSON-CSF	0	1	2	4	5	0	0	0
OTHERS	13	13	8	13	17	28	34	37
REST OF WORLD	32	4	2	2	8	10	16	20
NEIL	32	4	0	0	0	0	0	0
OTHERS	0	0	2	2	8	10	16	20

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-16

MOS MEMORY MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
	1675	2404	2039
TOTAL MARKET			
US COMPANIES	1249	1686	1351
ADVANCED MICRO DEVICES	79	107	98
AMERICAN MICROSYSTEMS	13	19	34
ANALOG DEVICES	0	0	0
CERREY SEMICONDUCTOR	0	0	0
COMMODORE	5	8	37
ELECTRONIC ARRAYS	16	20	35
FAIRCHILD	29	41	16
GENERAL ELECTRIC	0	0	0
GENERAL INSTRUMENT	35	47	75
GTE MICROCIRCUITS	28	24	24
HARRIS	10	16	22
HUGHES	2	3	3
INTEL	261	308	215
INTEGRAL	26	23	10
ITT	21	37	27
LITRONIX	0	0	0
MONOLITHIC MEMORIES	0	0	0
MOSTEK	167	259	150
MOTOROLA	100	145	110
NATIONAL SEMICONDUCTOR	73	135	117
PRECISION MONOLITHICS	0	0	0
RAYTHEON	0	0	0
RCA	16	25	29
ROCKWELL	35	37	35
SIGMETICS	20	28	21
SILICONIX	0	0	0
SOLID STATE SCIENTIFIC	1	3	2
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	2	3	3
SUPERTEX	0	2	4
SYNEXTEK	26	35	56
TELETYPE	0	0	0
TEXAS INSTRUMENTS	240	330	200
TIM	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	0	0	0
SILOG	2	1	0
OTHERS	42	30	28
JAPANESE COMPANIES	404	685	659
FUJITSU	85	231	203
SEIYACHI	117	149	150
MATSUSHITA	2	4	9
MITSUBISHI	10	20	32
NISSAN ELECTRIC	110	180	150
OKI			
SANYO	3	4	5
TOSEIBA	50	75	80
OTHERS	27	22	30
EUROPEAN COMPANIES	22	33	29
ARG-TELEFUNKEN	0	0	0
FERRANTI	0	0	0
PHILIPS	1	4	2
PLESSEY	0	0	0
SGS-ATES	3	6	6
SIEMENS	7	15	9
THOMSON-CSF	0	0	0
OTHERS	11	8	12
REST OF WORLD	0	0	0
MIL	0	0	0
OTHERS	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-17

MOS MICROPROCESSOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
TOTAL MARKET	545	869	1030
US COMPANIES	453	670	705
ADVANCED MICRO DEVICES	22	27	17
AMERICAN MICROSYSTEMS	9	11	9
ANALOG DEVICES	0	0	0
CERRY SEMICONDUCTOR	0	0	0
COMMODORE	10	11	8
ELECTRONIC ARRAYS	0	0	0
FAIRCHILD	20	28	24
GENERAL ELECTRIC	0	0	0
GENERAL INSTRUMENT	15	25	18
GTE MICROCIRCUITS	0	0	0
HAURIS	1	2	2
HUGHES	1	1	1
INTEL	123	190	210
INTERCIL	3	5	4
ITT	0	1	0
LITRONIX	0	0	0
MONOLITHIC MEMORIES	0	0	0
MOSTEK	26	41	26
MOTOROLA	50	85	125
NATIONAL SEMICONDUCTOR	32	55	70
PRECISION MONOLITHICS	0	0	0
RAYTHEON	0	0	0
RCA	4	10	14
ROCKWELL	10	12	10
SIGNETICS	9	10	14
SILICONIX	0	0	0
SOLID STATE SCIENTIFIC	0	0	0
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	4	5	6
SUPERTEX	0	0	0
SYNEXTEK	8	10	11
TELEDYNE	0	0	0
TEXAS INSTRUMENTS	80	95	80
TIM	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	3	5	6
ZILOG	18	31	40
OTHERS	5	10	10
JAPANESE COMPANIES	87	184	310
FUJITSU	3	10	48
HITACHI	15	39	61
NAIUSHITA	14	15	22
MITSUBISHI	0	0	0
NIIPPON ELECTRIC	50	91	142
OCI	0	0	0
SANYO	0	0	0
TOSHIBA	0	0	8
OTHERS	5	29	29
EUROPEAN COMPANIES	5	13	11
AGG-TELEFUNKEN	0	0	0
FERNANTI	0	0	0
PHILIPS	1	4	4
PLESSEY	0	0	0
SGS-ATES	1	3	3
SIEMENS	2	5	3
THOMSON-CSF	0	0	0
OTHERS	1	1	1
REST OF WORLD	0	2	4
MLL	0	0	0
OTHERS	0	2	4

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-18

MOS LOGIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1979	1980	1981
TOTAL MARKET	1174	1615	1568
US COMPANIES	664	897	858
ADVANCED MICRO DEVICES	3	5	6
AMERICAN MICROSYSTEMS	74	87	90
ANALOG DEVICES	0	0	0
CHERRY SEMICONDUCTOR	0	0	0
COMMODORE	0	0	35
ELECTRONIC ARRAYS	0	0	0
FAIRCHILD	28	36	25
GENERAL ELECTRIC	3	3	3
GENERAL INSTRUMENT	40	48	55
GTE MICROCIRCUITS	0	0	0
HARRIS	19	43	28
HUGHES	11	17	17
INTEL	35	50	50
INTERCIL	16	21	14
ITT	2	5	3
LITRONIX	0	0	0
MONOLITHIC MEMORIES	0	0	0
MOSTEK	20	30	34
MOTOROLA	115	165	145
NATIONAL SEMICONDUCTOR	45	75	68
PRECISION MONOLITHICS	0	0	0
RAYTHEON	0	0	0
RCA	64	80	67
ROCKWELL	25	26	25
SIGNETICS	6	2	1
SILICONIX	10	19	12
SOLID STATE SCIENTIFIC	25	30	32
SOLITRON	0	0	0
SPRAGUE	0	0	0
STANDARD MICROSYSTEMS	8	9	9
SUPERTEX	0	1	4
SYNERTEK	11	15	5
TELETYPE	5	9	9
TEXAS INSTRUMENTS	40	77	70
TIW	0	0	0
UNITRODE	0	0	0
WESTERN DIGITAL	9	18	21
XILOG	0	0	0
OTHERS	50	26	30
JAPANESE COMPANIES	345	487	497
FUJITSU	25	46	54
HITACHI	15	25	27
HITACHI	19	38	44
MITSUBISHI	59	66	64
NIPPON ELECTRIC	71	77	111
OCI			
SANYO	15	17	18
TOSHIBA	85	144	142
OTHERS	56	74	37
EUROPEAN COMPANIES	155	217	197
AEG-TELEFUNKEN	10	13	12
FERRANTI	4	6	10
PHILIPS	46	72	64
PLESSEY	5	7	7
SGS-ATES	18	28	27
SIEMENS	56	66	53
THOMSON-CSF	0	0	0
OTHERS	16	25	24
REST OF WORLD	10	14	16
MIL	0	0	0
OTHERS	10	14	16

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-19

LINEAR MARKET SHARE ESTIMATES^{1,2} (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	676	610	837	1097	1559	1948	2411	2773
TOTAL MARKET								
US COMPANIES	416	389	443	582	786	1008	1213	1267
ADVANCED MICRO DEVICES	6	6	9	10	14	18	21	23
AMERICAN MICROSYSTEMS	0	0	0	0	0	0	0	0
ANALOG DEVICES				25	42	55	75	89
CERRY SEMICONDUCTOR						2	5	6
COMMODORE				0	0	0	0	0
ELECTRONIC ARRAYS	0	0	0	0	0	0	0	0
FAIRCHILD	53	48	63	52	60	78	83	79
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	3	3	5	5	7	6	6	12
GTE MICROCIRCUITS				0	0	0	0	0
HARRIS	13	14	13	22	31	37	34	35
HUGHES	0	0	0	0	0	0	0	0
INTEL	0	0	0	0	0	0	0	0
INTERILL	8	7	7	12	19	30	38	44
ITT	21	18	23	27	30	32	50	43
LITRONIX	0	0	0	0	0	0	0	0
MONOLITHIC MEMORIES	0	0	0	0	0	0	0	0
MOYTEX	0	0	0	0	0	0	0	0
MOTOROLA ²	60	48	59	67	96	123	140	160
NATIONAL SEMICONDUCTOR ²	64	70	67	88	118	170	208	218
PRECISION MONOLITHICS			7	12	15	21	32	34
RAYTHEON	14	10	11	12	14	17	18	18
RCA	50	41	38	47	58	64	67	76
ROCKWELL	0	0	0	0	0	0	0	0
SIGNETICS	24	17	28	40	50	55	58	62
SILICONIX	4	7	8	9	20	24	27	23
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	2	2	2	2	2	2	2
SPRAGUE	9	6	9	17	27	38	44	46
STANDARD MICROSYSTEMS				0	0	0	0	0
SUPERTEX						0	0	0
SYNTEK	0	0	0	0	0	0	0	0
TELETYPE	7	5	3	2	2	2	2	2
TEXAS INSTRUMENTS ²	52	55	71	92	135	170	205	215
TIN	0	7	5	7	7	14	24	24
UNITRODE ²	0	0	0	0	2	9	17	0
WESTERN DIGITAL	0	0	0	0	0	0	0	0
WILCO				0	0	0	0	0
OTHERS	28	25	15	34	37	41	57	56
JAPANESE COMPANIES	147	120	249	320	514	602	808	1136
FUJITSU				5	6	8	12	26
HITACHI	17	22	39	44	82	92	124	186
MATSUSHITA	19	16	31	44	55	57	79	147
MITSUBISHI	9	7	12	18	30	37	59	80
NIPPON ELECTRIC	37	37	60	62	77	96	131	165
OCI								
SANYO					70	87	105	126
TOSHIBA	21	19	47	59	93	76	101	144
OTHERS	44	19	60	88	101	147	197	262
EUROPEAN COMPANIES	113	101	145	193	259	338	387	363
AG-TELEFUNKEN	5	4	7	10	16	22	28	29
FERRANTI				8	10	11	15	25
PHILIPS ²	56	72	96	102	130	160	158	140
PLESSEY				8	12	17	23	22
SGS-ATES	11	13	11	29	33	42	49	57
SIEMENS	22	0	12	15	25	35	48	38
THOMSON-CSF	19	12	14	15	23	30	36	27
OTHERS	0	0	5	6	10	21	30	25
REST OF WORLD	0	0	0	2	0	0	3	7
NIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	2	0	0	3	7

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²Totals include the following estimated amounts of hybrid ICs: Motorola (1979, 1980) - \$15 million and \$18 million; NSC (1979, 1980)-\$40 million and \$46 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980)-\$55 million and \$66 million.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-26

TOTAL DISCRETE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	2700	2028	2598	2848	3204	3466	3708	3761
US COMPANIES	1318	1044	1238	1287	1406	1665	1731	1602
COMMUNICATIONS TRANSISTOR				11	12	15	16	18
FAIRCHILD	98	72	78	83	87	90	81	76
GENERAL ELECTRIC	110	79	101	102	102	114	120	109
GENERAL INSTRUMENT	31	25	33	40	50	67	74	74
GENERAL MOTORS	21	13	13	12	12	15	15	13
HEWLETT-PACKARD	5	4	5	12	15	20	24	22
INTERCIL	3	3	4	6	6	7	7	9
INTERNATIONAL RECTIFIER	43	44	48	59	67	77	88	84
ITT	102	80	97	93	95	100	106	92
MOTOROLA	309	239	288	313	349	413	422	441
NATIONAL SEMICONDUCTOR	21	25	31	25	31	39	40	37
RAYTHEON	14	11	12	13	13	14	14	14
RCA	75	78	90	97	105	118	127	94
SILICONIX	12	9	11	13	15	19	18	25
SOLID STATE SCIENTIFIC ²	6	4	5	5	7	0	0	0
SOLITRON	16	10	13	15	16	23	26	23
SPRAGUE	6	4	6	6	6	5	5	5
SUPERTEX	0	0	0	0	0	0	3	4
TELEDYNE	29	19	16	15	12	9	9	9
TEXAS INSTRUMENTS	218	177	174	170	176	184	191	150
TRW	31	27	31	34	37	32	30	30
UNITRODE	29	25	29	33	40	60	70	70
VARO	21	24	33	36	37	41	45	42
WESTINGHOUSE	36	29	38	40	47	58	65	59
OTHERS	82	43	82	54	69	133	135	102
JAPANESE COMPANIES	722	479	778	927	1077	963	1077	1401
FUJITSU				29	33	35	39	40
HITACHI	103	114	145	144	196	173	228	275
MATSUSHITA	111	82	131	130	157	124	152	190
MITSUBISHI	46	31	75	83	77	69	80	105
NIFFON ELECTRIC	93	101	157	176	209	201	213	291
OKI								
SANYO					32	37	44	55
TOSEIBA	112	78	131	141	192	187	241	304
OTHERS	257	73	139	224	181	137	80	141
EUROPEAN COMPANIES	660	505	578	630	717	828	890	748
AGC-TELEFUNKEN	44	38	43	71	83	120	126	82
FERRANTI				9	11	13	18	14
PHILIPS	280	200	220	234	246	260	273	218
PLESSEY				3	3	4	4	0
SGS-ATES	60	33	30	35	41	46	48	50
SIEMENS	95	96	120	135	151	165	175	146
THOMSON-CSF	61	60	65	73	100	120	140	127
OTHERS	120	78	100	70	82	100	106	111
REST OF WORLD	0	0	4	4	4	10	10	10
NIL	0	0	0	0	0	0	0	0
OTHERS	0	0	4	4	4	10	10	10

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-27

TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	1400	1063	1333	1437	1547	1648	1725	1855
US COMPANIES	681	555	637	655	705	808	822	821
COMMUNICATIONS TRANSISTOR				11	12	15	16	18
FAIRCHILD	68	46	51	51	54	55	37	35
GENERAL ELECTRIC	34	27	30	30	27	31	33	37
GENERAL INSTRUMENT	1	1	1	0	0	0	0	0
GENERAL MOTORS	13	8	8	10	10	12	12	11
HEWLETT-PACKARD	4	3	4	8	10	12	15	13
INTERIL	3	3	4	6	6	7	7	9
INTERNATIONAL RECTIFIER	2	2	3	5	6	10	14	14
ITT	33	25	31	30	30	30	31	27
MOTOROLA	199	159	191	200	220	262	273	304
NATIONAL SEMICONDUCTOR	20	24	30	25	31	39	40	37
RAYTHEON	10	8	8	10	13	14	14	14
RCA	54	56	64	70	75	85	91	74
SILICONIX	12	9	11	13	15	19	18	25
SOLID STATE SCIENTIFIC ²	3	2	3	5	7	0	0	0
SOLITRON	16	6	9	10	10	14	15	15
SPRAGUE	6	4	6	6	8	5	5	5
SUPERTEK	0	0	0	0	0	0	3	4
TELEDYNE	10	7	7	7	7	9	9	9
TEXAS INSTRUMENTS	154	136	127	124	129	134	138	115
TRW	26	23	26	28	30	32	30	30
UNITRODE	2	2	2	2	3	6	8	9
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	1	1	1	1
OTHERS	11	4	21	4	3	16	12	15
JAPANESE COMPANIES	413	278	434	520	548	457	500	699
FUJITSU					24	25	26	25
HITACHI					78	76	87	108
MATSUSHITA					105	80	90	115
MITSUBISHI					30	26	30	37
NIPPON ELECTRIC					118	107	102	171
OKI								
SANYO					13	7	10	14
TOSHIBA					110	87	122	157
OTHERS					70	49	33	72
EUROPEAN COMPANIES	306	230	258	258	290	378	398	330
AGC-TELEFUNKEN						42	43	30
FERRANTI						7	9	7
PHILIPS						156	164	130
PLESSEY						2	2	0
SGS-ATES						22	23	24
SIEMENS						77	82	68
THOMSON-CSF						45	51	46
OTHERS						27	24	25
REST OF WORLD	0	0	4	4	4	5	5	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	4	4	4	5	5	5

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.6; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thompson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-28

SMALL SIGNAL TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	874	638	793	801	851	861	889	1009
US COMPANIES	367	302	332	321	345	390	395	395
COMMUNICATIONS TRANSISTOR				2	2	3	3	3
FAIRCHILD	52	33	33	32	37	40	36	35
GENERAL ELECTRIC	28	23	24	22	20	22	23	25
GENERAL INSTRUMENT	1	1	1	0	0	0	0	0
GENERAL MOTORS	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	1	1	1	2	3	4	5	4
INTERCIL	3	3	4	6	6	7	7	7
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
ITT	33	25	31	30	30	30	31	27
MOTOROLA	105	84	102	102	115	137	143	153
NATIONAL SEMICONDUCTOR	17	21	25	19	22	28	27	26
RAYTHEON	10	8	8	10	13	14	14	14
RCA	1	1	1	2	3	5	5	7
SILICONIX	12	9	11	13	13	16	15	22
SOLID STATE SCIENTIFIC ²	0	0	0	0	0	0	0	0
SOLITRON	0	1	2	2	2	2	2	2
SPRAGUE	6	4	6	6	6	5	5	5
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	10	7	7	7	7	9	9	9
TEXAS INSTRUMENTS	85	79	65	62	63	64	65	52
TW	1	1	1	1	1	1	1	1
UNITRODE	0	0	0	0	0	0	0	0
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	2	1	10	3	2	3	4	3
JAPANESE COMPANIES	291	179	287	316	329	253	268	430
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	216	157	170	160	173	213	221	179
AEG-TELEFUNKEN						42	43	30
FERRANTI						3	4	3
PHILIPS						105	110	88
PLESSEY						2	2	0
SGS-ATES						10	10	11
SIEMENS						31	33	25
THOMSON-CSF						10	12	10
OTHERS						10	7	12
REST OF WORLD	0	0	4	4	4	5	5	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	4	4	4	5	5	5

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-29

POWER TRANSISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	526	425	540	636	696	787	836	846
US COMPANIES	314	253	305	334	360	418	427	426
COMMUNICATIONS TRANSISTOR				9	10	12	13	15
FAIRCHILD	16	13	18	19	17	15	1	0
GENERAL ELECTRIC	6	4	6	8	7	9	10	12
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	13	8	8	10	10	12	12	11
HEWLETT-PACKARD	3	2	3	6	7	8	10	9
INTERCIL	0	0	0	0	0	0	0	2
INTERNATIONAL RECTIFIER	2	2	3	5	6	10	14	14
ITT	0	0	0	0	0	0	0	0
MOTOROLA	94	75	89	98	105	125	130	151
NATIONAL SEMICONDUCTOR	3	3	5	6	9	11	13	11
RAYTECH	0	0	0	0	0	0	0	0
RCA	53	55	63	68	72	80	86	67
SILICONIX	0	0	0	0	2	3	3	3
SOLID STATE SCIENTIFIC ²	3	2	3	5	7	0	0	0
SOLITRON	16	5	7	8	8	12	13	13
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	3	4
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	69	57	62	62	66	70	73	63
TRW	25	22	25	27	29	31	29	29
UNITRODE	2	2	2	2	3	6	8	9
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	1	1	1	1
OTHERS	9	3	11	1	1	13	8	12
JAPANESE COMPANIES	122	99	147	204	219	204	232	269
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	90	73	88	98	117	165	177	151
AEG-TELEFUNKEN						0	0	0
FERRANTI						4	5	4
PHILIPS						51	54	42
PLESSEY						0	0	0
SGS-ATES						12	13	13
SIEMENS						46	49	43
THOMSON-CSF						35	39	36
OTHERS						17	17	13
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In 1979 Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson-CSF.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-30

DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	944	709	911	997	1182	1275	1397	1354
US COMPANIES	448	349	423	435	498	600	656	565
COMMUNICATIONS TRANSISTOR				0	0	0	0	0
FAIRCHILD	28	24	25	30	33	35	44	41
GENERAL ELECTRIC	40	28	37	37	27	31	33	24
GENERAL INSTRUMENT	30	24	32	40	50	67	74	74
GENERAL MOTORS	8	5	5	2	2	3	3	2
HEWLETT-PACKARD	1	1	1	4	5	8	9	9
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	28	29	30	37	41	44	48	47
ITT	61	50	60	58	60	65	70	61
MOTOROLA	78	64	75	89	104	118	116	106
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	1	2	2	2	2	2
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	3	2	2	0	0	0	0	0
SOLITRON	0	4	4	5	6	9	11	8
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEK	0	0	0	0	0	0	0	0
TELEDYNE	19	12	9	8	5	0	0	0
TEXAS INSTRUMENTS	50	30	32	31	34	37	39	25
TSM	5	4	5	6	7	0	0	0
UNITRODE	22	19	23	26	32	46	54	52
VARD	21	24	33	36	37	41	45	42
WESTINGHOUSE	16	14	16	15	17	21	24	22
OTHERS	38	15	33	9	36	67	84	50
JAPANESE COMPANIES	240	159	252	294	378	361	411	506
FUJITSU				8	9	10	13	15
HITACHI				66	88	87	113	135
MAZDAHITA				30	44	36	47	58
MITSUBISHI				20	18	16	21	20
NIFFON ELECTRIC				53	68	65	80	84
OKI				0	12	18	20	25
SANYO				48	62	65	88	112
TOSHIBA				69	77	64	29	57
OTHERS								
EUROPEAN COMPANIES	256	201	236	268	306	309	325	278
ADG-TELEFUNKEN						53	56	38
FERRANTI						6	9	7
PHILIPS						94	99	80
PLESSEY						2	2	0
SGS-ATES						16	16	17
SIEMENS						60	63	53
THOMSON-CSF						40	50	46
OTHERS						38	30	37
REST OF WORLD	0	0	0	0	0	5	5	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	5	5	5

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-31

SMALL SIGNAL DIODE MARKET SHARE ESTIMATES¹
(Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	323	211	286	309	356	399	423	432
US COMPANIES	156	103	123	115	123	153	162	150
COMMUNICATIONS TRANSISTOR				0	0	0	0	0
FAIRCHILD	24	21	21	23	25	29	32	30
GENERAL ELECTRIC	6	5	6	6	4	3	3	1
GENERAL INSTRUMENT	15	11	16	19	26	34	38	42
GENERAL MOTORS	0	0	0	0	0	0	0	0
HIDALLET-PACKARD	0	0	0	1	2	3	3	3
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
ITT	31	26	32	30	30	30	31	30
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	3	2	2	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEK	0	0	0	0	0	0	0	0
TELETYPE	10	6	4	3	0	0	0	0
TEXAS INSTRUMENTS	37	19	20	19	20	22	22	13
TRW	0	0	0	0	0	0	0	0
UNITRODE	5	4	5	6	9	13	15	15
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	25	9	17	8	7	19	18	16
JAPANESE COMPANIES	66	36	77	88	110	115	130	164
FUJITSU								
HITACHI								
MITSUBISHI								
MITSUBISHI								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	101	72	86	106	123	126	126	113
AEG-TELEFUNKEN						0	0	0
FERRANTI						3	4	3
PHILIPS						55	57	46
PLESSEY						2	2	0
SGS-ATES						10	8	11
SIEMENS						25	26	22
THOMSON-CSF						25	27	28
OTHERS						6	2	3
BEST OF WORLD	0	0	0	0	0	5	5	5
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	5	5	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-32

POWER DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	482	398	504	559	661	703	780	729
US COMPANIES	217	189	238	256	289	352	394	320
COMMUNICATIONS TRANSISTOR				0	0	0	0	0
FAIRCHILD	3	2	3	5	7	5	7	4
GENERAL ELECTRIC	34	23	31	31	23	28	30	23
GENERAL INSTRUMENT	15	13	16	21	24	33	36	32
GENERAL MOTORS	3	2	3	1	1	2	2	1
HEWLETT-PACKARD	0	0	0	1	1	2	3	3
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	25	26	27	34	39	43	47	46
ITT	19	15	18	18	19	22	24	19
MOTOROLA	41	38	45	57	68	78	76	65
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	1	2	2	2	2	2
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	4	4	5	6	9	11	8
SPRAGUE	0	0	0	0	0	0	0	0
SUPRETEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEGAS INSTRUMENTS	10	7	8	8	10	11	13	10
TNW	5	4	5	6	7	0	0	0
UNITRODE	12	11	13	16	18	26	31	29
VARO	21	24	33	36	37	41	45	42
WESTINGHOUSE	16	14	16	15	17	21	24	22
OTHERS	13	6	15	0	10	27	43	14
JAPANESE COMPANIES	148	107	150	179	233	213	243	288
FIJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOHIBA								
OTHERS								
EUROPEAN COMPANIES	117	102	116	124	139	138	143	121
AGC-TELEFUNKEN						53	56	38
FERRANTI						0	0	0
PHILIPS						29	30	24
PLESSEY						0	0	0
SOS-ATES						0	0	0
SIEMENS						35	37	31
THOMSON-CSF						0	0	0
OTHERS						21	20	28
REST OF WORLD	0	0	0	0	0	0	0	0
NIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.0; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-33

ZENER DIODE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	139	100	121	129	145	173	194	193
TOTAL MARKET								
US COMPANIES	75	57	62	64	86	95	100	95
COMMUNICATIONS TRANSISTOR	0	0	0	0	0	0	0	0
FAIRCHILD	1	1	1	2	1	1	5	7
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	5	3	2	1	1	1	1	1
HEWLETT-PACKARD	1	1	1	2	2	3	3	3
INTERMIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	3	3	3	3	2	1	1	1
ITT	11	9	10	10	11	13	15	12
MOTOROLA	37	26	30	32	36	40	40	41
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	0	0	0	0	0	0	0	0
RCA	0	0	0	0	0	0	0	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPRETEX	0	0	0	0	0	0	0	0
TELEDYNE	9	6	5	5	5	0	0	0
TEXAS INSTRUMENTS	3	4	4	4	4	4	4	2
TRW	0	0	0	0	0	0	0	0
UNITRODE	5	4	5	4	5	7	8	8
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	0	0	1	1	19	21	23	20
JAPANESE COMPANIES	26	16	25	27	35	33	38	54
FUJITSU								
SHIMADZU								
MITSUBISHI								
MITSUBISHI								
NIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	38	27	34	38	44	45	56	44
AEG-TELEFUNKEN						0	0	0
FERRANTI						3	5	4
PHILIPS						10	12	10
PLESSEY						0	0	0
SGS-ATES						6	8	6
SIEMENS						0	0	0
THOMSON-CSF						15	23	18
OTHERS						11	6	6
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.6; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-34

THYRISTOR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	232	180	241	295	327	375	410	380
US COMPANIES	118	96	124	147	148	182	190	155
COMMUNICATIONS TRANSISTOR				0	0	0	0	0
FAIRCHILD	0	0	0	0	0	0	0	0
GENERAL ELECTRIC	28	19	29	30	38	41	43	35
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	13	13	15	17	20	23	26	23
ITT	0	0	0	0	0	0	0	0
MOTOROLA	17	13	18	21	22	25	26	21
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
RAYTHEON	3	2	3	3	0	0	0	0
RCA	17	17	21	24	27	30	33	18
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPRETEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	7	4	8	8	7	7	8	6
TW	0	0	0	0	0	0	0	0
UNITRODE	4	3	3	4	4	6	7	7
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	20	15	22	25	29	36	40	36
OTHERS	9	10	5	15	1	14	7	9
JAPANESE COMPANIES	42	26	49	69	85	81	93	114
FIATTSU				0	0	0	0	0
HITACHI				6	10	10	14	16
MATSUSHITA				3	3	3	4	5
DAIICHI				21	19	17	21	29
DAIICHI ELECTRIC				7	10	15	17	21
OKI								
SANYO				0	7	12	14	16
TOSHIBA				14	14	17	19	21
OTHERS				18	22	7	4	6
EUROPEAN COMPANIES	72	58	68	79	94	112	127	111
AEG-TELEFUNKEN						25	27	14
FERRANTI						0	0	0
PHILIPS						10	10	8
FLESSEY						0	0	0
SGS-ATES						8	9	9
SIEMENS						28	30	25
THOMSON-CSF						35	39	35
OTHERS						6	12	20
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-35

OTHER DISCRETE MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	124	76	113	119	148	168	176	172
TOTAL MARKET								
US COMPANIES	71	44	54	50	55	75	63	61
COMMUNICATIONS TRANSISTOR								
FAIRCHILD	2	2	2	2	0	0	0	0
GENERAL ELECTRIC	8	5	5	5	10	11	11	13
GENERAL INSTRUMENT	0	0	0	0	0	0	0	0
GENERAL MOTORS	0	0	0	0	0	0	0	0
HEWLETT-PACKARD	0	0	0	0	0	0	0	0
INTERCIL	0	0	0	0	0	0	0	0
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
ITT	8	5	6	5	5	5	5	4
MOTOROLA	15	3	4	3	3	8	7	10
NATIONAL SEMICONDUCTOR	1	1	1	0	0	0	0	0
RAYTHEON	1	1	1	0	0	0	0	0
RCA	4	5	4	1	1	1	1	0
SILICONIX	0	0	0	0	0	0	0	0
SOLID STATE SCIENTIFIC	0	0	0	0	0	0	0	0
SOLITRON	0	0	0	0	0	0	0	0
SPRAGUE	0	0	0	0	0	0	0	0
SUPERTEX	0	0	0	0	0	0	0	0
TELEDYNE	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	7	7	7	7	6	6	6	4
TRW	0	0	0	0	0	0	0	0
UNITRODE	1	1	1	1	1	2	1	2
VARO	0	0	0	0	0	0	0	0
WESTINGHOUSE	0	0	0	0	0	0	0	0
OTHERS	24	14	23	26	29	36	32	28
JAPANESE COMPANIES	27	16	43	44	66	64	73	82
FUJITSU					0	0	0	0
HITACHI					20	0	14	16
MAZDA					5	5	11	12
DAIICHI					10	10	8	19
DAIICHI ELECTRIC					13	14	14	15
DAIICHI								
SANYO					0	0	0	0
TOSHIBA					6	18	12	14
OTHERS					12	17	14	6
EUROPEAN COMPANIES	26	16	16	25	27	29	40	29
ADG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-36

TOTAL OPTOELECTRONIC MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	195	225	288	313	429	593	701	710
TOTAL MARKET								
US COMPANIES	166	183	213	201	268	359	393	340
FAIRCHILD	13	30	25	16	18	26	24	16
GENERAL ELECTRIC	4	4	6	7	9	12	14	10
GENERAL INSTRUMENT ²	0	0	0	0	0	39	44	40
HEWLETT-PACKARD	24	30	38	40	54	65	71	62
INTERNATIONAL RECTIFIER	0	1	1	1	2	2	2	2
LITRONIX	19	17	16	15	16	31	34	31
MORGANTO ²	17	17	21	19	30	0	0	0
MOTOROLA	4	3	2	2	2	6	8	9
NATIONAL SEMICONDUCTOR	15	22	15	12	15	21	23	19
NCA	0	0	1	1	8	8	8	7
SPECTRONICS	3	5	7	11	11	15	17	17
TEXAS INSTRUMENTS	42	43	60	57	66	76	84	70
TRW OPTRON	0	0	0	0	0	13	17	19
OTHERS	27	21	21	20	37	45	47	33
JAPANESE COMPANIES	16	22	45	63	94	149	209	283
FUJITSU	0	0	0	0	0	0	0	0
HITACHI	1	1	2	8	10	11	20	30
MATSUSHITA	2	4	6	2	11	10	18	28
MITSUBISHI	0	0	1	2	0	0	0	0
NIPPON ELECTRIC	3	3	4	6	10	14	21	21
OKI	0	0	0	0	0	0	0	0
SANYO	0	0	0	0	0	0	0	0
TOSHIBA	6	7	15	11	20	35	56	76
OTHERS	4	7	17	34	43	79	94	128
EUROPEAN COMPANIES	11	20	30	49	67	85	99	87
AEG-TELEFUNKEN	0	0	0	0	5	8	13	18
FERRANTI	0	0	0	1	0	0	0	0
PHILIPS	0	0	0	10	20	25	27	24
PLESSEY	0	0	0	3	4	4	4	7
SGS-ATES	0	0	0	0	0	0	0	0
SIEMENS	0	0	0	32	35	44	50	36
THOMSON-CSF	0	0	0	0	0	0	0	0
OTHERS	0	0	0	3	3	4	5	2
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In June 1979, Morganto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-37

LED LAMPS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	23	32	54	67	89	113	133	142
US COMPANIES	19	24	29	30	37	49	54	45
FAIRCHILD	2	3	4	4	5	7	6	4
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT ²	0	0	0	0	0	10	11	8
HEWLETT-PACKARD	3	4	5	6	8	9	10	9
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
LITRONIX	3	4	3	3	2	4	4	4
MORGANTON ²	4	4	5	6	9	0	0	0
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	2	3	4	3	4	6	7	6
NCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	0	0	0	0	0	0
TEXAS INSTRUMENTS	3	4	6	6	8	10	12	9
TRW OPTRON	0	0	0	0	0	0	0	0
OTHERS	2	2	2	2	1	3	4	3
JAPANESE COMPANIES	2	3	17	25	37	46	61	81
FUJITSU								
HITACHI								
MATSUSHITA								
mitsubishi								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOSEIBA								
OTHERS								
EUROPEAN COMPANIES	2	5	8	12	15	18	18	16
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATHS								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-38

LED DISPLAYS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	120	128	151	145	198	264	298	296
US COMPANIES	107	111	120	99	132	170	179	150
FAIRCHILD	7	13	16	9	10	15	14	9
GENERAL ELECTRIC	0	0	0	0	0	0	0	0
GENERAL INSTRUMENT ²	0	0	0	0	0	13	15	11
HEWLETT-PACKARD	16	20	26	26	33	41	44	39
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
LITRONIX	14	12	11	11	12	21	23	20
MOMASANT ²	10	8	11	8	10	0	0	0
MOTOROLA	0	0	0	0	0	0	0	0
NATIONAL SEMICONDUCTOR	13	19	11	9	11	15	16	13
RCA	0	0	0	0	0	0	0	0
SPECTRONICS	1	1	2	3	3	2	2	2
TEXAS INSTRUMENTS	28	24	30	28	32	37	40	34
TRW OPTRON	0	0	0	0	0	0	0	0
OTHERS	18	14	13	5	21	26	25	19
JAPANESE COMPANIES	8	10	20	28	40	59	61	111
FUJITSU								
HITACHI								
MATSUSHITA								
MITSUBISHI								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	5	7	11	18	26	35	38	35
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In June 1979, Momasanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-39

OPTICAL COUPLERS MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
	21	22	29	35	53	80	97	86
TOTAL MARKET								
US COMPANIES	17	17	24	26	37	60	71	61
FAIRCHILD	2	2	3	2	2	3	3	2
GENERAL ELECTRIC	2	3	5	7	9	12	14	10
GENERAL INSTRUMENT ²	0	0	0	0	0	8	10	12
HEWLETT-PACKARD	3	3	4	5	7	8	9	8
INTERNATIONAL RECTIFIER	0	0	0	0	0	0	0	0
LITRONIX	2	1	2	1	2	4	5	4
MONSANTO ²	3	5	5	5	7	0	0	0
MOTOROLA	0	0	0	0	0	3	4	4
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
NCA	0	0	0	0	0	0	0	0
SPECTRONICS	0	0	1	1	1	2	3	3
TEXAS INSTRUMENTS	3	3	4	4	6	8	10	9
TWV OPTRON	0	0	0	0	0	0	0	0
OTHERS	2	0	0	1	3	12	13	9
JAPANESE COMPANIES	2	3	3	5	8	11	14	16
FUJITSU								
HITACHI								
MAITSUSHITA								
MITSUBISHI								
NISSON ELECTRIC								
OKI								
SANYO								
TOSHIBA								
OTHERS								
EUROPEAN COMPANIES	2	2	2	4	8	9	12	9
ABG-TELEFUNKEN					0	0	0	0
FERRANTI					0	0	0	0
PHILIPS					7	9	10	8
PLESSEY					0	0	0	0
SGS-ATES					0	0	0	0
SIEMENS					0	0	0	0
THOMSON-CSF					0	0	0	0
OTHERS					1	0	2	1
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.1; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

Table B-40

OTHER TOTAL OPTOELECTRONICS MARKET SHARE ESTIMATES¹
(Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981
TOTAL MARKET	31	43	54	66	89	136	173	186
US COMPANIES	25	31	40	46	62	80	89	84
FAIRCHILD	2	2	2	1	1	1	1	1
GENERAL ELECTRIC	2	1	1	0	0	0	0	0
GENERAL INSTRUMENT ²	0	0	0	0	0	8	8	9
HEWLETT-PACKARD	2	3	3	3	6	7	8	6
INTERNATIONAL RECTIFIER	0	1	1	1	2	2	2	2
LITRONIX	0	0	0	0	0	2	2	3
MOMENTO ²	0	0	0	0	4	0	0	0
MOTOROLA	4	3	2	2	2	3	4	5
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
NCA	0	0	1	1	8	8	8	7
SPECTRONICS	2	4	4	7	7	11	12	12
TEXAS INSTRUMENTS	8	12	20	19	20	21	22	18
TWA OPTRON	0	0	0	0	0	13	17	19
OTHERS	5	5	6	12	12	4	5	2
JAPANESE COMPANIES	4	6	5	5	9	33	53	75
FUJITSU								
Hitachi								
MITSUBISHI								
MITSUBISHI								
NIIPPON ELECTRIC								
OKI								
SANYO								
TOHIBA								
OTHERS								
EUROPEAN COMPANIES	2	6	9	15	18	23	31	27
AEG-TELEFUNKEN								
FERRANTI								
PHILIPS								
PLESSEY								
SGS-ATES								
SIEMENS								
THOMSON-CSF								
OTHERS								
REST OF WORLD	0	0	0	0	0	0	0	0
MIL	0	0	0	0	0	0	0	0
OTHERS	0	0	0	0	0	0	0	0

¹Japanese companies' revenues are converted at the following exchange rates in yen/dollar: 1974-291.8; 1975-296.9; 1976-296.2; 1977-265.9; 1978-207.4; 1979-221.3; 1980-224.7; 1981-221.3

²In June 1979, Momento Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.

Source: DATAQUEST
September 1982

Appendix B—Market Share Estimates

An integral part of DATAQUEST's Semiconductor Industry Service data base is the analysis of semiconductor markets by estimating each manufacturer's market share. This analysis provides insights into semiconductor markets and reinforces estimates of consumption, production, and company revenues that were made using other data. Table B-1 gives market share estimates for the total worldwide merchant semiconductor market. Tables B-2, B-26, and B-36 further segment the semiconductor market into integrated circuits, discrete devices, and optoelectronic devices. Each of these categories is divided into a number of subgroups, and some subgroups are further segmented. In general, these product divisions are self-explanatory. Since 1979, the Bipolar Digital and MOS segments are divided both by function and by technology. The difference between signal and power transistors or diodes is set at the 1-watt power-handling capability level. Special discrete semiconductor devices that are neither transistors, diodes, nor thyristors are categorized as "Other" and shown in Table B-35. An index of all tables is included for easy reference. Tables B-20 through B-25 are not included at this time; however, the space is maintained for future accommodation.

The semiconductor market is divided among U.S. companies, European companies, Japanese companies, and Rest-of-World (ROW) companies based on the location of their main offices. Although almost all U.S. semiconductor companies are listed, only the leading European and Japanese companies are included.

Although only a limited number of companies are included in the tables, we keep information on more than 100 companies. When not shown explicitly, their production is included in "Others."

The totals given for U.S. companies reflect worldwide production. For example, Texas Instruments manufactures semiconductors in many parts of the world, and its entire production is included under the U.S. companies' market share section. In contrast, some, but not all, foreign-owned subsidiaries, such as Litronix (Siemens), are included in the U.S. totals and not in the total of the parent company location. A U.S. subsidiary of a foreign company is included in U.S. companies if it maintains its own identity, i.e., carries its own name rather than that of its parent company. A good example of this is Fairchild Semiconductor (Schlumberger). The total for U.S. companies, therefore, is not the same as for U.S. semiconductor consumption or U.S. factory shipments detailed in Tables A-2 and A-7 in Appendix A.

Appendix B—Market Share Estimates

DEFINITIONS AND CONVENTIONS

DATAQUEST utilizes a common basis of companies for all its data tables. This basis includes all noncaptive suppliers to the semiconductor market. It excludes captive suppliers that manufacture devices solely for the benefit of the parent company, such as Burroughs, IBM, NCR, and Western Electric, but includes companies that actively market semiconductor devices to industry as well as to other divisions of their own company. Both external shipments and internal consumption are included for these companies. Value of devices used internally is estimated at current market prices.

Regional Breakdown - Appendix A Definitions and Appendix B Definitions

The criteria used for placing semiconductor revenues in one of the four geographic regions are different in Appendix A, Tables A-1 to A-5; Appendix A, Tables A-6 to A-10; and Appendix B. Consumption, as used in Tables A-1 to A-5, is defined as the purchase of a semiconductor device or devices. This definition must be differentiated from actual use of the device in a final product. Devices that are inventoried at the user level are considered consumption, under our definition, and the values are assigned to the region to which the product was shipped.

Fabrication and assembly of semiconductor devices are often performed in several different locations. For the purposes of this data base, factory shipments, as the term is used in Tables A-6 to A-10, are defined geographically as occurring from that point where the device is tested and marked, irrespective of where the device is assembled or where initial wafer fabrication is performed. In general, factory shipments and production are equated, but devices inventoried at the manufacturer's level are not included in DATAQUEST's basis for factory shipments.

In Appendix B, value of shipments is assigned to the geographic region in which the home base of the company is located, regardless of where the device is actually manufactured. For example, consider a device manufactured, tested, and marked at National Semiconductor's Greenock, Scotland, plant and shipped to IBM in the United States. Those revenues appear in Table A-2, Estimated North American Semiconductor Consumption, because the part was shipped to IBM in the United States. The revenues appear again in Table A-9, Estimated European Semiconductor Factory Shipments, because Scotland is in Europe. Finally, because National Semiconductor is a U.S.-based company, the revenues appear under "U.S. Companies" in Appendix B.

Appendix B—Market Share Estimates

Hybrid Circuits

Because of reporting methods previously used by the Electronic Industries Association (EIA) and the Japanese Ministry for International Trade and Industry (MITI), hybrid devices are included as a product segment of integrated circuits in the years prior to 1973. This segmentation is somewhat artificial because hybrid devices are primarily a special packaging arrangement. As a result, DATAQUEST has deleted this segment for the years beginning with 1973. However, hybrids are included under Linear, Table B-22, for principal hybrid suppliers that do wafer fabrication. When the hybrid values are known, they are broken out in a footnote at the bottom of the table.

Exchange Rate Conventions

Estimates of Japanese consumption or factory shipments use the exchange rate (yen/dollar) for the given year. Refer to Table B-0 for the exchange rates used. In viewing the year-to-year Japanese market growth rate, one must consider the different exchange rates in effect during the year. For the European market, the value of shipments is estimated directly in dollars.

DATA SOURCES

There is no official body in the United States or Europe--government organization, industry association, or trade publication--that maintains complete or near complete statistics on the semiconductor industry. In Japan, some statistics are kept by MITI. It should be clear from its broad scope and detailed breakdown that Appendix B is a major effort. We believe that the estimates presented here are the most accurate and meaningful generally available today. The sources of the data presented in the tables are:

- Revenues published by major industry participants
- Estimates presented by knowledgeable and reliable industry spokespersons
- Government data or trade association data such as those from SIA, MITI, and EIA
- Published product literature and price lists
- Interviews with knowledgeable manufacturers, distributors, and users
- Relevant projected world economic data

Appendix B — Market Share Estimates

Most estimates have been reviewed by knowledgeable market research analysts from several of the major industry participants, and revisions were made if justified by the additional data they provided. Thus, these estimates represent a consensus of the industry's own estimates.

ACCURACY

The tables presented here represent DATAQUEST's estimates, which we believe to be reasonably accurate. Accordingly, where we have no accurate estimate, one is not given. A blank space in a table indicates the unavailability of a reasonably accurate estimate, whereas a zero in a table represents an estimate.

NEED FOR CAREFUL INTERPRETATION

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, careful attention must be paid to the definitions and assumptions used here when interpreting the estimates presented in these tables. Various companies, government agencies, and trade associations may use slightly different definitions of product categories and regional groupings, or they may include different companies in their summaries. These differences should be kept in mind when making comparisons between these data and those provided by others.

Appendix B—Market Share Estimates

INDEX OF TABLES

<u>Title</u>	<u>Table</u>
Japanese Exchange Rates	B-0
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital (Technology)	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
Bipolar Digital (Function) - Same as B-3	B-8
Memory	B-9
Logic	B-10
MOS (Technology)	B-11
PMOS	B-12
NMOS	B-13
CMOS	B-14
MOS (Function) - Same as B-11	B-15
Memory	B-16
Microprocessor	B-17
Logic	B-18
Linear	B-19
Amplifiers	B-20
Voltage Regulators	B-21
Data Conversion	B-22
Interface	B-23

Appendix B — Market Share Estimates

Table B-0

JAPANESE EXCHANGE RATES
(Expressed in U.S. Dollars)

<u>Year</u>	<u>Japan: Dollars Per Yen</u>
1970	\$0.002795
1971	\$0.002913
1972	\$0.003311
1973	\$0.003721
1974	\$0.003427
1975	\$0.003368
1976	\$0.003376
1977	\$0.003761
1978	\$0.004857
1979	\$0.004518
1980	\$0.004449
1981	\$0.004519
1982	\$0.004022

Source: Federal Reserve Bulletin
DATAQUEST

Appendix B—Market Share Estimates

Table B-2

TOTAL INTEGRATED CIRCUIT MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	2,100	2,923	3,685	5,201	7,055	9,662	9,791	10,598
US COMPANIES	1,569	2,068	2,607	3,449	4,735	6,405	5,949	6,274
ADVANCED MICRO DEVICES	32	55	82	132	203	282	279	329
AMERICAN MICROSYSTEMS	58	59	68	71	96	117	133	160
ANALOG DEVICES			26	43	55	75	89	101
CHERRY SEMICONDUCTOR					4	9	6	10
COMMODORE 4			8	8	15	19	50	20
ELECTRONIC ARRAYS	15	17	14	12	16	20	35	48
FAIRCHILD	144	204	226	253	353	461	370	333
GENERAL ELECTRIC	0	0	0	2	3	3	3	3
GENERAL INSTRUMENT	32	73	77	75	96	126	160	203
GTE MICROCIRCUITS			17	21	28	24	24	45
HARRIS	42	44	60	85	115	185	165	153
HUGHES	13	17	23	17	14	21	21	25
INTEL	111	147	200	300	440	575	508	578
INTERCIL	43	55	55	61	85	89	66	62
ITT	40	47	58	65	75	84	78	90
LITRONIX	6	3	0	0	0	0	0	0
MICRON TECHNOLOGY	0	0	0	0	0	0	0	5
MICRO POWER SYSTEMS								18
MONOLITHIC MEMORIES	18	20	25	34	47	87	68	70
MOSTEK	38	56	83	125	213	330	210	220
MOTOROLA 1	120	172	227	329	500	680	730	791
NATIONAL SEMICONDUCTOR 1	168	203	248	330	450	657	648	620
PRECISION MONOLITHICS		7	12	16	23	32	34	40
RAYTHEON	19	20	20	24	28	30	34	34
RCA	70	83	108	127	150	187	192	185
ROCKWELL	60	50	47	52	70	75	70	80
SIGNETICS	82	125	175	214	265	384	366	340
SILICONIX	14	14	17	30	34	46	35	35
SILICON SYSTEMS						11	13	16
SOLID STATE SCIENTIFIC	4	12	11	18	26	33	34	33
SOLITRON	6	5	5	5	6	6	5	5
SPRAGUE	10	14	17	27	38	44	46	41
STANDARD MICROSYSTEMS			8	10	14	17	18	19
SUPERTEX						5	6	8
SYNERTEK	1	5	19	33	45	60	72	88
TELEDYNE	11	9	7	9	11	15	15	17
TEXAS INSTRUMENTS	300	421	514	679	952	1,305	1,075	1,155
TRW	8	6	9	10	18	16	20	31
UNITRODE 1							0	2
VLSI TECHNOLOGY	0	0	0	0	0	0	0	18
WESTERN DIGITAL	7	5	6	6	12	23	27	30
ZILOG	0	0	3	9	18	30	39	44
OTHERS	97	120	132	217	217	242	205	169
JAPANESE COMPANIES	343	605	748	1,313	1,685	2,459	3,089	3,463
FUJITSU	0	0	60	91	169	236	335	427
HITACHI	83	120	128	247	269	374	502	607
MATSUSHITA	22	40	60	86	103	149	277	249
MITSUBISHI	25	50	54	70	126	174	212	244
NIPPON ELECTRIC	107	153	187	299	364	533	646	722
OKI							88	109
SANYO				88	111	136	148	142
SHARP							105	123
TOSHIBA	49	90	111	189	220	332	394	428
OTHERS	57	152	148	243	323	525	382	412

(Continued)

Appendix B — Market Share Estimates

Table B-2 (Continued)

TOTAL INTEGRATED CIRCUIT MARKET SHARE ESTIMATES¹
(Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
EUROPEAN COMPANIES	184	242	320	425	620	773	718	821
ASEA-HAFO			2	2	3	4	5	7
FERRANTI			11	14	17	26	34	68
INMOS			0	0	0	0	4	26
MATRA-HARRIS			0	0	0	0	6	15
PHILIPS1			94	141	215	255	224	230
PLESSEY			15	24	34	44	41	43
SGS-ATES			46	54	71	88	110	126
SIEMENS			67	97	159	188	155	160
TELEFUNKEN ELECTRONIC 5			16	23	32	41	38	36
THOMSON7			31	40	51	81	59	54
OTHERS			38	30	38	46	42	56
REST OF WORLD	4	8	10	14	15	25	35	40
MIL	4	0	0	0	0	0	0	0
OTHERS	0	8	10	14	15	25	35	40

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-3

BIPOLAR DIGITAL MARKET SHARE ESTIMATES - TECHNOLOGY (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	627	832	1,010	1,280	1,683	2,433	2,352	2,394
US COMPANIES	508	665	805	1,003	1,348	1,972	1,797	1,764
ADVANCED MICRO DEVICES	14	21	35	47	81	122	135	158
ANALOG DEVICES			1	1	0	0	0	0
CHERRY SEMICONDUCTOR				0	2	4	0	0
FAIRCHILD	74	106	116	141	198	273	226	206
HARRIS	16	15	26	36	48	90	78	63
HUGHES	3	2	4	3	0	0	0	0
INTEL	12	15	15	17	21	27	33	38
INTERCIL	10	12	10	7	10	12	7	1
ITT	4	4	2	0	0	0	0	0
MONOLITHIC MEMORIES	18	20	25	34	47	87	68	70
MOTOROLA	48	58	68	90	112	135	192	203
NATIONAL SEMICONDUCTOR	48	69	80	117	130	184	175	165
RAYTHEON	9	9	8	10	11	12	14	14
RCA	0	0	0	0	2	5	6	7
SIGNETICS	55	85	110	132	175	286	268	244
SOLITRON	3	1	1	1	2	2	1	1
SPRAGUE	4	5	0	0	0	0	0	0
SUPERTEX						2	0	0
TELEDYNE	5	4	3	4	4	4	4	4
TEXAS INSTRUMENTS	145	215	242	306	422	598	510	520
TRW	1	1	2	3	4	0	0	0
OTHERS	39	23	57	54	79	129	80	70
JAPANESE COMPANIES	64	99	129	194	217	309	412	466
FUJITSU	0	0	34	47	54	81	99	129
HITACHI	18	18	21	38	45	73	95	111
MATSUSHITA	1	2	6	10	11	13	10	7
MITSUBISHI	7	19	12	15	20	29	38	44
NIPPON ELECTRIC	16	19	27	39	35	54	78	85
OKI							9	7
SANYO				5	6	10	12	12
TOSHIBA	6	8	11	8	9	12	14	16
OTHERS	16	33	18	32	37	37	57	55
EUROPEAN COMPANIES	55	62	70	77	113	146	135	154
FERRANTI			3	4	6	9	14	32
PHILIPS			11	15	24	33	30	34
PLESSEY			7	10	13	19	16	18
SGS-ATES			6	7	7	9	14	5
SIEMENS			20	31	52	64	52	56
THOMSON7			1	2	2	3	2	2
OTHERS			22	8	9	9	7	7
REST OF WORLD	0	6	6	6	5	6	8	10
OTHERS	0	6	6	6	5	6	8	10

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-4

TTL MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	458	666	794	1,001	1,346	2,003	1,948	1,962
US COMPANIES	380	550	659	826	1,123	1,669	1,541	1,507
ADVANCED MICRO DEVICES	14	21	35	47	81	122	135	154
ANALOG DEVICES			1	1	0	0	0	0
FAIRCHILD	53	80	83	105	156	228	186	162
HARRIS	12	12	24	35	47	89	77	62
HUGHES	3	2	4	3	0	0	0	0
INTEL	12	15	15	17	21	27	33	38
INTERCIL	10	12	10	7	10	12	7	1
ITT	3	3	1	0	0	0	0	0
MONOLITHIC MEMORIES	18	20	25	34	47	87	68	70
MOTOROLA	15	19	24	31	46	55	88	94
NATIONAL SEMICONDUCTOR	48	69	80	117	130	182	172	162
RAYTHEON	7	9	8	10	11	12	14	14
RCA	0	0	0	0	2	5	6	7
SIGNETICS	47	79	100	122	163	270	256	233
SPRAGUE	3	4	0	0	0	0	0	0
SUPERTEX						1	0	0
TEXAS INSTRUMENTS	120	187	223	286	400	575	495	505
TRW	1	1	2	3	4	0	0	0
OTHERS	14	17	24	8	5	4	4	5
JAPANESE COMPANIES	38	64	86	129	153	229	312	356
EUROPEAN COMPANIES	40	46	43	40	65	99	87	89
FERRANTI			1	2	3	4	4	6
PHILIPS			1	1	7	18	15	21
SGS-ATES			6	7	7	9	14	5
SIEMENS			14	22	39	59	48	51
THOMSON			1	2	2	3	2	2
OTHERS			20	6	7	6	4	4
REST OF WORLD	0	6	6	6	5	6	8	10
OTHERS	0	6	6	6	5	6	8	10

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-5

DTL MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	76	66	48	48	41	37	26	20
US COMPANIES	61	52	38	35	30	28	18	12
FAIRCHILD	14	15	12	10	8	9	5	5
HARRIS	4	3	2	1	1	1	1	1
ITT	1	1	1	0	0	0	0	0
MOTOROLA	10	13	9	9	9	7	7	6
RAYTHEON	2	0	0	0	0	0	0	0
SIGNETICS	6	4	4	4	3	4	1	0
SPRAGUE	1	1	0	0	0	0	0	0
TEXAS INSTRUMENTS	15	15	10	9	7	5	2	0
OTHERS	8	0	0	2	2	2	2	0
JAPANESE COMPANIES	8	6	7	9	7	4	3	3
EUROPEAN COMPANIES	7	8	3	4	4	5	5	5
FERRANTI			1	1	1	1	1	1
PHILIPS			1	2	2	2	2	2
OTHERS			1	1	1	2	2	2

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-6

ECL MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	56	74	100	146	171	205	239	259
US COMPANIES	34	39	59	82	102	119	134	148
ADVANCED MICRO DEVICES								4
FAIRCHILD	3	8	18	23	30	32	31	34
INTERCIL	0	0	0	0	0	0	0	0
MOTOROLA	19	18	30	43	50	65	89	96
NATIONAL SEMICONDUCTOR	0	0	0	0	0	2	3	3
SIGNETICS	2	2	4	6	9	12	11	11
TEXAS INSTRUMENTS	10	5	5	8	10	5	0	0
OTHERS	0	6	2	2	3	3	0	0
JAPANESE COMPANIES	15	28	30	49	46	60	79	85
EUROPEAN COMPANIES	7	7	11	15	23	26	26	26
PHILIPS			5	7	12	13	13	11
PLESSEY			4	6	7	9	9	10
SIEMENS			2	2	4	4	4	5

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-7

OTHER BIPOLAR DIGITAL MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	37	26	68	85	125	188	139	153
US COMPANIES	33	24	49	60	93	156	104	97
CHERRY SEMICONDUCTOR					2	4	0	0
FAIRCHILD	4	3	3	3	4	4	4	5
MOTOROLA	4	8	5	7	7	8	8	7
NATIONAL SEMICONDUCTOR	0	0	0	0	0	0	0	0
SIGNETICS	0	0	2	0	0	0	0	0
SOLITRON	3	1	1	1	2	2	1	1
SUPERTEX						1	0	0
TELEDYNE	5	4	3	4	4	4	4	4
TEXAS INSTRUMENTS	0	8	4	3	5	13	13	15
OTHERS	17	0	31	42	69	120	74	65
JAPANESE COMPANIES	3	1	6	7	11	16	18	22
EUROPEAN COMPANIES	1	1	13	18	21	16	17	34
FERRANTI			1	1	2	4	9	25
PHILIPS			4	5	3	0	0	0
PLESSEY			3	4	6	10	7	8
SIEMENS			4	7	9	1	0	0
OTHERS			1	1	1	1	1	1

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-8

BIPOLAR DIGITAL MARKET SHARE ESTIMATES - FUNCTION (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	627	832	1,010	1,280	1,683	2,433	2,352	2,394
US COMPANIES	508	665	805	1,003	1,348	1,972	1,797	1,764
ADVANCED MICRO DEVICES	14	21	35	47	81	122	135	158
ANALOG DEVICES			1	1	0	0	0	0
CHERRY SEMICONDUCTOR				0	2	4	0	0
FAIRCHILD	74	106	116	141	198	273	226	206
HARRIS	16	15	26	36	48	90	78	63
HUGHES	3	2	4	3	0	0	0	0
INTEL	12	15	15	17	21	27	33	38
INTERCIL	10	12	10	7	10	12	7	1
ITT	4	4	2	0	0	0	0	0
MONOLITHIC MEMORIES	18	20	25	34	47	87	68	70
MOTOROLA	48	58	68	90	112	135	192	203
NATIONAL SEMICONDUCTOR	48	69	80	117	130	184	175	165
RAYTHEON	9	9	8	10	11	12	14	14
RCA	0	0	0	0	2	5	6	7
SIGNETICS	55	85	110	132	175	286	268	244
SOLITRON	3	1	1	1	2	2	1	1
SPRAGUE	4	5	0	0	0	0	0	0
SUPERTEX						2	0	0
TELEDYNE	5	4	3	4	4	4	4	4
TEXAS INSTRUMENTS	145	215	242	306	422	598	510	520
TRW	1	1	2	3	4	0	0	0
OTHERS	39	23	57	54	79	129	80	70
JAPANESE COMPANIES	64	99	129	194	217	309	412	466
FUJITSU	0	0	34	47	54	81	99	129
HITACHI	18	18	21	38	45	73	95	111
MATSUSHITA	1	2	6	10	11	13	10	7
MITSUBISHI	7	19	12	15	20	29	38	44
NIPPON ELECTRIC	16	19	27	39	35	54	78	85
OKI							9	7
SANYO				5	6	10	12	12
TOSHIBA	6	8	11	8	9	12	14	16
OTHERS	16	33	18	32	37	37	57	55
EUROPEAN COMPANIES	55	62	70	77	113	146	135	154
FERRANTI			3	4	6	9	14	32
PHILIPS			11	15	24	33	30	34
PLESSEY			7	10	13	19	16	18
SGS-ATES			6	7	7	9	14	5
SIEMENS			20	31	52	64	52	56
THOMSON 7			1	2	2	3	2	2
OTHERS			22	8	9	9	7	7
REST OF WORLD	0	6	6	6	5	6	8	10
OTHERS	0	6	6	6	5	6	8	10

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-9

BIPOLAR DIGITAL MEMORY MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	327	584	565	547
US COMPANIES	273	500	460	408
ADVANCED MICRO DEVICES	21	40	45	57
FAIRCHILD	62	73	64	50
HARRIS	33	60	50	44
INTEL	11	16	28	32
INTERCIL	9	11	7	1
MONOLITHIC MEMORIES	30	55	40	35
MOTOROLA	16	22	20	15
NATIONAL SEMICONDUCTOR	15	24	25	24
RAYTHEON	2	6	6	6
SIGNETICS	51	127	120	101
SUPERTEX	0	1	0	0
TEXAS INSTRUMENTS	14	55	50	43
OTHERS	9	10	5	0
JAPANESE COMPANIES	51	80	101	135
FUJITSU	17	36	46	63
HITACHI	11	16	25	40
MATSUSHITA	0	0	1	0
NIPPON ELECTRIC	13	18	18	21
SANYO	4	8	9	9
OTHERS	6	2	2	2
EUROPEAN COMPANIES	3	4	4	4
SIEMENS	3	4	4	4

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-10

BIPOLAR DIGITAL LOGIC MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	1,356	1,849	1,787	1,847
US COMPANIES	1,075	1,472	1,337	1,356
ADVANCED MICRO DEVICES	60	82	90	101
CHERRY SEMICONDUCTOR	2	4	0	0
FAIRCHILD	136	200	162	156
HARRIS	15	30	28	19
INTEL	10	11	5	6
INTERCIL	1	1	0	0
ITT	0	0	0	0
MONOLITHIC MEMORIES	17	32	28	35
MOTOROLA	96	113	172	188
NATIONAL SEMICONDUCTOR	115	160	150	141
RAYTHEON	9	6	8	8
RCA	2	5	6	7
SIGNETICS	124	159	148	143
SOLITRON	2	2	1	1
SUPERTEX	0	1	0	0
TELEDYNE	4	4	4	4
TEXAS INSTRUMENTS	408	543	460	477
TRW	4	0	0	0
OTHERS	70	119	75	70
JAPANESE COMPANIES	166	229	311	331
FUJITSU	37	45	53	66
HITACHI	34	57	70	71
MATSUSHITA	11	13	9	7
MITSUBISHI	20	29	38	44
NIPPON ELECTRIC	22	36	60	64
OKI			9	7
SANYO	2	2	3	3
TOSHIBA	9	12	14	16
OTHERS	31	35	55	53
EUROPEAN COMPANIES	110	142	131	150
FERRANTI	6	9	14	32
PHILIPS	24	33	30	34
PLESSEY	13	19	16	18
SGS-ATES	7	9	14	5
SIEMENS	49	60	48	52
THOMSON	2	3	2	2
OTHERS	9	9	7	7
REST OF WORLD	5	6	8	10
OTHERS	5	6	8	10

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-11

MOS MARKET SHARE ESTIMATES - TECHNOLOGY (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	863	1,254	1,593	2,406	3,460	4,896	4,750	5,476
US COMPANIES	672	960	1,223	1,665	2,389	3,262	2,896	3,202
ADVANCED MICRO DEVICES	12	25	37	71	104	139	121	146
AMERICAN MICROSYSTEMS	58	59	68	71	96	117	133	160
COMMODORE 4			8	8	15	19	50	20
ELECTRONIC ARRAYS	15	17	14	12	16	20	35	48
FAIRCHILD	22	35	58	52	77	105	65	50
GENERAL ELECTRIC	0	0	0	2	3	3	3	3
GENERAL INSTRUMENT	29	68	72	68	90	120	148	183
GTE MICROCIRCUITS			17	21	28	24	24	45
HARRIS	12	16	12	18	30	61	52	43
HUGHES	10	15	19	14	14	21	21	25
INTEL	99	132	185	283	419	548	475	540
INTERCIL	26	36	33	35	45	39	19	25
ITT	18	20	32	39	46	51	46	56
LITRONIX	6	3	0	0	0	0	0	0
MICRON TECHNOLOGY	0	0	0	0	0	0	0	5
MICRO POWER SYSTEMS								8
MOSTEK	38	56	83	125	213	330	210	220
MOTOROLA	24	55	92	143	265	405	372	425
NATIONAL SEMICONDUCTOR	50	67	80	95	150	265	255	235
RCA	29	45	61	69	84	115	110	108
ROCKWELL	60	50	47	52	70	75	70	80
SIGNETICS	10	12	25	32	35	40	36	38
SILICONIX	7	6	8	10	10	19	12	10
SILICON SYSTEMS						11	13	16
SOLID STATE SCIENTIFIC	4	12	11	18	26	33	34	33
SOLITRON	1	2	2	2	2	2	2	2
STANDARD MICROSYSTEMS			8	10	14	17	18	19
SUPERTEX						3	6	8
SYNERTEK	1	5	19	33	45	60	72	88
TELEDYNE	1	2	2	3	5	9	9	11
TEXAS INSTRUMENTS	100	135	180	238	360	502	350	400
VLSI TECHNOLOGY	0	0	0	0	0	0	0	18
WESTERN DIGITAL	7	5	6	6	12	23	27	30
ZILOG	0	0	3	9	18	30	39	44
OTHERS	33	82	41	126	97	56	69	60
JAPANESE COMPANIES	159	257	299	605	866	1,342	1,566	1,936
FUJITSU			21	38	107	143	218	280
HITACHI	43	63	62	139	147	213	288	390
MATSUSHITA	5	7	10	21	35	57	91	89
MITSUBISHI	11	19	24	25	69	86	99	137
NIPPON ELECTRIC	54	74	98	183	231	348	403	484
OKI							77	101
SANYO				13	18	21	23	24
SHARP							82	100
TOSHIBA	24	35	41	88	135	219	250	311
OTHERS	22	59	43	98	124	255	35	20

(Continued)

Appendix B — Market Share Estimates

Table B-11 (Continued)

MOS MARKET SHARE ESTIMATES - TECHNOLOGY (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
EUROPEAN COMPANIES	28	35	69	128	195	276	268	316
ASEA-HAFO			2	2	3	4	5	7
FERRANTI			0	0	0	2	4	13
INMOS			0	0	0	0	4	26
MATRA-HARRIS			0	0	0	0	6	15
PHILIPS			5	30	48	70	64	61
PLESSEY			2	4	8	9	12	11
SGS-ATES			8	10	14	24	33	45
SIEMENS			20	38	65	76	65	64
TELEFUNKEN ELECTRONICS			6	7	10	13	11	5
THOMSON7			11	16	19	42	30	21
OTHERS			15	21	28	36	34	48
REST OF WORLD	4	2	2	8	10	16	20	22
MIL	4	0	0	0	0	0	0	0
OTHERS	0	2	2	8	10	16	20	22

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-12

PMOS MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	506	511	445	391
US COMPANIES	330	318	259	211
AMERICAN MICROSYSTEMS	38	35	24	20
FAIRCHILD	15	18	10	5
GENERAL INSTRUMENT	30	35	36	28
HUGHES	1	1	1	1
ITT	18	17	15	16
MOSTEK	10	7	3	3
NATIONAL SEMICONDUCTOR	10	15	10	9
ROCKWELL	38	40	38	35
SIGNETICS	10	7	2	0
SOLID STATE SCIENTIFIC	2	4	0	0
TEXAS INSTRUMENTS	110	120	100	80
WESTERN DIGITAL	2	0	0	0
OTHERS	46	19	20	14
JAPANESE COMPANIES	107	120	126	121
FUJITSU	9	12	8	6
HITACHI	8	12	14	9
MATSUSHITA	9	15	18	15
MITSUBISHI	12	12	9	9
NIPPON ELECTRIC	25	28	30	30
OKI			5	5
SANYO	6	5	4	3
SHARP			16	18
TOSHIBA	15	18	20	24
OTHERS	23	18	2	2
EUROPEAN COMPANIES	66	70	57	56
PHILIPS	24	27	24	24
PLESSEY	4	4	4	4
SGS-ATES	4	3	4	4
SIEMENS	28	30	20	20
TELEFUNKEN ELECTRONICS	2	1	1	0
OTHERS	4	5	4	4
REST OF WORLD	3	3	3	3
OTHERS	3	3	3	3

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-13

NMOS MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	2,251	3,376	3,133	3,761
US COMPANIES	1,600	2,314	2,024	2,361
ADVANCED MICRO DEVICES	104	139	121	146
AMERICAN MICROSYSTEMS	25	44	67	88
COMMODORE 4	15	19	48	17
ELECTRONIC ARRAYS	16	20	35	48
FAIRCHILD	45	55	35	32
GENERAL ELECTRIC	3	3	3	3
GENERAL INSTRUMENT	60	85	112	155
GTE MICROCIRCUITS	28	24	24	45
INTEL	418	545	475	540
INTERSIL	15	14	6	8
ITT	19	22	21	27
MICRON TECHNOLOGY	0	0	0	5
MOSTEK	194	310	189	197
MOTOROLA	160	240	223	280
NATIONAL SEMICONDUCTOR	100	190	165	152
ROCKWELL	32	35	32	45
SIGNETICS	25	33	34	38
SILICON SYSTEMS	11	11	13	16
SOLID STATE SCIENTIFIC	2	5	1	1
STANDARD MICROSYSTEMS	10	12	12	12
SUPERTEX	0	1	0	0
SYNERTEK	45	60	72	88
TEXAS INSTRUMENTS	242	374	240	300
VLSI TECHNOLOGY	0	0	0	18
WESTERN DIGITAL	10	23	27	30
ZILOG	18	30	39	44
OTHERS	14	20	30	26
JAPANESE COMPANIES	557	908	955	1,207
FUJITSU	87	113	185	232
HITACHI	94	126	158	240
MATSUSHITA	17	27	53	50
MITSUBISHI	53	66	80	114
NIPPON ELECTRIC	171	270	308	379
OKI	0	0	30	40
SANYO	9	11	12	12
SHARP	0	0	18	23
TOSHIBA	30	66	80	101
OTHERS	96	229	31	16
EUROPEAN COMPANIES	94	154	154	193
FERRANTI	0	2	4	13
INMOS	0	0	4	26
MATRA-HARRIS	0	0	2	7
PHILIPS	14	27	29	26
PLESSEY	4	5	7	6
SGS-ATES	6	14	18	28
SIEMENS	37	46	45	44
TELEFUNKEN ELECTRONIC 5	8	12	10	5
THOMSON 7	14	34	22	15
OTHERS	11	14	13	23

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-14

CMOS MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	703	1,009	1,172	1,324
US COMPANIES	459	630	613	630
AMERICAN MICROSYSTEMS	33	38	42	52
COMMODORE 4	0	0	2	3
FAIRCHILD	17	32	20	13
HARRIS	30	61	52	43
HUGHES	13	20	20	24
INTEL	1	3	0	0
INTERCIL	30	25	13	17
ITT	9	12	10	13
MICRO POWER SYSTEMS				8
MOSTEK	9	13	18	20
MOTOROLA	105	165	149	145
NATIONAL SEMICONDUCTOR	40	60	80	74
RCA	84	115	110	108
SILICONIX	10	19	12	10
SOLID STATE SCIENTIFIC	22	24	33	32
STANDARD MICROSYSTEMS	4	5	6	7
SUPERTEX	0	2	6	8
TELEDYNE	5	9	9	11
TEXAS INSTRUMENTS	8	8	10	20
OTHERS	37	17	19	20
JAPANESE COMPANIES	202	314	485	608
FUJITSU	11	18	25	42
HITACHI	45	75	116	141
MATSUSHITA	9	15	20	24
MITSUBISHI	4	8	10	14
NIPPON ELECTRIC	35	50	65	75
OKI			42	56
SANYO	3	5	7	9
SHARP			48	59
TOSHIBA	90	135	150	186
OTHERS	5	8	2	2
EUROPEAN COMPANIES	35	52	57	67
ASEA-HAFO	3	4	5	7
MATRA-HARRIS	0	0	4	8
PHILIPS	10	16	11	11
PLESSEY	0	0	1	1
SGS-ATES	4	7	11	13
THOMSON 7	5	8	8	6
OTHERS	13	17	17	21
REST OF WORLD	7	13	17	19
OTHERS	7	13	17	19

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-15

MOS MARKET SHARE ESTIMATES - FUNCTION (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	863	1,254	1,593	2,406	3,460	4,896	4,750	5,476
US COMPANIES	672	960	1,223	1,665	2,389	3,262	2,896	3,202
ADVANCED MICRO DEVICES	12	25	37	71	104	139	121	146
AMERICAN MICROSYSTEMS	58	59	68	71	96	117	133	160
COMMODORE 4			8	8	15	19	50	20
ELECTRONIC ARRAYS	15	17	14	12	16	20	35	48
FAIRCHILD	22	35	58	52	77	105	65	50
GENERAL ELECTRIC	0	0	0	2	3	3	3	3
GENERAL INSTRUMENT	29	68	72	68	90	120	148	183
GTE MICROCIRCUITS			17	21	28	24	24	45
HARRIS	12	16	12	18	30	61	52	43
HUGHES	10	15	19	14	14	21	21	25
INTEL	99	132	185	283	419	548	475	540
INTERIL	26	36	33	35	45	39	19	25
ITT	18	20	32	39	46	51	46	56
LITRONIX	6	3	0	0	0	0	0	0
MICRON TECHNOLOGY	0	0	0	0	0	0	0	5
MICRO POWER SYSTEMS								8
MOSTEK	38	56	83	125	213	330	210	220
MOTOROLA	24	55	92	143	265	405	372	425
NATIONAL SEMICONDUCTOR	50	67	80	95	150	265	255	235
RCA	29	45	61	69	84	115	110	108
ROCKWELL	60	50	47	52	70	75	70	80
SIGNETICS	10	12	25	32	35	40	36	38
SILICONIX	7	6	8	10	10	19	12	10
SILICON SYSTEMS						11	13	16
SOLID STATE SCIENTIFIC	4	12	11	18	26	33	34	33
SOLITRON	1	2	2	2	2	2	2	2
STANDARD MICROSYSTEMS			8	10	14	17	18	19
SUPERTEX						3	6	8
SYNERTEK	1	5	19	33	45	60	72	88
TELEDYNE	1	2	2	3	5	9	9	11
TEXAS INSTRUMENTS	100	135	180	238	360	502	350	400
VLSI TECHNOLOGY	0	0	0	0	0	0	0	18
WESTERN DIGITAL	7	5	6	6	12	23	27	30
ZILOG	0	0	3	9	18	30	39	44
OTHERS	33	82	41	126	97	56	69	60
JAPANESE COMPANIES	159	257	299	605	866	1,342	1,566	1,936
FUJITSU			21	38	107	143	218	280
HITACHI	43	63	62	139	147	213	288	390
MATSUSHITA	5	7	10	21	35	57	91	89
MITSUBISHI	11	19	24	25	69	86	99	137
NIPPON ELECTRIC	54	74	98	183	231	348	403	484
OKI							77	101
SANYO				13	18	21	23	24
SHARP							82	100
TOSHIBA	24	35	41	88	135	219	250	311
OTHERS	22	59	43	98	124	255	35	20

(Continued)

Appendix B—Market Share Estimates

Table B-15 (Continued)

MOS MARKET SHARE ESTIMATES - FUNCTION
(Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
EUROPEAN COMPANIES	28	35	69	128	195	276	268	316
ASEA-HAFO			2	2	3	4	5	7
FERRANTI			0	0	0	2	4	13
INMOS			0	0	0	0	4	26
MATRA-HARRIS			0	0	0	0	6	15
PHILIPS			5	30	48	70	64	61
PLESSEY			2	4	8	9	12	11
SGS-ATES			8	10	14	24	33	45
SIEMENS			20	38	65	76	65	64
TELEFUNKEN ELECTRONIC 5			6	7	10	13	11	5
THOMSON 7			11	16	19	42	30	21
OTHERS			15	21	28	36	34	48
REST OF WORLD	4	2	2	8	10	16	20	22
MIL	4	0	0	0	0	0	0	0
OTHERS	0	2	2	8	10	16	20	22

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-16

MOS MEMORY MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	1,672	2,313	2,038	2,615
US COMPANIES	1,242	1,677	1,325	1,564
ADVANCED MICRO DEVICES	79	107	98	112
AMERICAN MICROSYSTEMS	13	19	34	54
COMMODORE 4	5	8	25	10
ELECTRONIC ARRAYS	16	20	35	48
FAIRCHILD	29	41	16	7
GENERAL INSTRUMENT	35	47	75	103
GTE MICROCIRCUITS	28	24	24	45
HARRIS	10	16	22	18
HUGHES	2	3	3	4
INTEL	261	308	215	232
INTERCIL	26	23	10	15
ITT	12	16	16	20
MICRON TECHNOLOGY	0	0	0	5
MICRO POWER SYSTEMS				2
MOSTEK	167	259	150	152
MOTOROLA	100	155	106	157
NATIONAL SEMICONDUCTOR	73	135	117	110
RCA	16	25	29	32
ROCKWELL	35	37	35	40
SIGNETICS	20	28	21	24
SOLID STATE SCIENTIFIC	1	3	2	3
STANDARD MICROSYSTEMS	2	3	3	3
SUPERTEX	0	2	3	4
SYNERTEX	26	35	56	68
TEXAS INSTRUMENTS	240	330	200	250
VLSI TECHNOLOGY	0	0	0	18
ZILOG	2	1	0	0
OTHERS	42	30	28	26
JAPANESE COMPANIES	414	609	670	972
FUJITSU	85	105	145	190
HITACHI	117	149	200	290
MATSUSHITA	2	4	9	9
MITSUBISHI	10	20	34	73
NIPPON ELECTRIC	110	180	150	187
OKI			31	55
SANYO	3	4	5	6
SHARP			11	16
TOSHIBA	50	75	80	141
OTHERS	37	72	5	5
EUROPEAN COMPANIES	16	27	43	78
INMOS	0	0	4	26
MATRA-HARRIS	0	0	5	10
PHILIPS	1	2	3	3
SGS-ATES	4	7	13	16
SIEMENS	7	10	10	10
THOMSON 7	3	6	4	3
OTHERS	1	2	4	10
REST OF WORLD	0	0	0	1
OTHERS	0	0	0	1

Note: For footnotes, see the last page of this Appendix

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-17

MOS MICROPROCESSOR MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	570	892	1,080	1,211
US COMPANIES	451	657	699	745
ADVANCED MICRO DEVICES	22	27	17	28
AMERICAN MICROSYSTEMS	9	11	9	12
COMMODORE 4	10	11	3	2
FAIRCHILD	20	28	24	23
GENERAL INSTRUMENT	15	25	18	30
HARRIS	1	2	2	3
HUGHES	1	1	1	4
INTEL	123	190	210	191
INTERSIL	3	5	4	5
ITT	0	0	1	3
MOSTEK	26	41	26	28
MOTOROLA	50	75	124	128
NATIONAL SEMICONDUCTOR	32	55	70	63
RCA	4	10	14	18
ROCKWELL	10	12	10	18
SIGNETICS	9	10	14	14
STANDARD MICROSYSTEMS	4	5	6	6
SYNERTEK	8	10	11	16
TEXAS INSTRUMENTS	80	95	80	95
WESTERN DIGITAL	3	5	6	7
ZILOG	16	29	39	44
OTHERS	5	10	10	7
JAPANESE COMPANIES	107	216	358	436
FUJITSU	6	18	48	60
HITACHI	15	39	61	75
MATSUSHITA	14	15	45	48
MITSUBISHI	7	14	20	25
NIPPON ELECTRIC	50	91	142	157
OKI			2	6
SHARP			25	29
TOSHIBA			8	30
OTHERS	15	39	7	6
EUROPEAN COMPANIES	12	17	19	26
MATRA-HARRIS	0	0	1	5
PHILIPS	3	3	3	3
SGS-ATES	2	4	6	7
SIEMENS	3	4	4	3
THOMSON 7	3	4	4	4
OTHERS	1	2	1	4
REST OF WORLD	0	2	4	4
OTHERS	0	2	4	4

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-18

MOS LOGIC MARKET SHARE ESTIMATES (Millions of Dollars)

	1979	1980	1981	1982
TOTAL MARKET	1,218	1,691	1,632	1,650
US COMPANIES	696	928	872	893
ADVANCED MICRO DEVICES	3	5	6	6
AMERICAN MICROSYSTEMS	74	87	90	94
COMMODORE 4	0	0	22	8
FAIRCHILD	28	36	25	20
GENERAL ELECTRIC	3	3	3	3
GENERAL INSTRUMENT	40	48	55	50
HARRIS	19	43	28	22
HUGHES	11	17	17	17
INTEL	35	50	50	117
INTERCIL	16	11	5	5
ITT	34	35	29	33
MICRO POWER SYSTEMS				6
MOSTEK	20	30	34	40
MOTOROLA	115	175	142	140
NATIONAL SEMICONDUCTOR	45	75	68	62
RCA	64	80	67	58
ROCKWELL	25	26	25	22
SIGNETICS	6	2	1	0
SILICONIX	10	19	12	10
SILICON SYSTEMS	0	11	13	16
SOLID STATE SCIENTIFIC	25	30	32	30
STANDARD MICROSYSTEMS	8	9	9	10
SUPERTEX	0	1	3	4
SYNERTEK	11	15	5	4
TELEDYNE	5	9	9	11
TEXAS INSTRUMENTS	40	77	70	55
WESTERN DIGITAL	9	18	21	23
OTHERS	50	16	31	27
JAPANESE COMPANIES	345	517	538	528
FUJITSU	16	20	25	30
HITACHI	15	25	27	25
MATSUSHITA	19	38	37	32
MITSUBISHI	52	52	45	39
NIPPON ELECTRIC	71	77	111	140
OKI			44	40
SANYO	15	17	18	18
SHARP			46	55
TOSHIBA	85	144	162	140
OTHERS	72	144	23	9
EUROPEAN COMPANIES	167	232	206	212
ASEA-HAFO	3	4	5	7
FERRANTI	0	2	4	13
PHILIPS	44	65	58	55
PLESSEY	8	9	12	11
SGS-ATES	8	13	14	22
SIEMENS	55	62	51	51
TELEFUNKEN ELECTRONIC 5	10	13	11	5
THOMSON 7	13	32	22	14
OTHERS	26	32	29	34
REST OF WORLD	10	14	16	17
OTHERS	0	14	16	17

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-19

LINEAR MARKET SHARE ESTIMATES¹ (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	610	837	1,082	1,515	1,912	2,333	2,689	2,728
US COMPANIES	389	443	579	781	998	1,171	1,256	1,308
ADVANCED MICRO DEVICES	6	9	10	14	18	21	23	25
ANALOG DEVICES			25	42	55	75	89	101
CHERRY SEMICONDUCTOR					2	5	6	10
FAIRCHILD	48	63	52	60	78	83	79	77
GENERAL INSTRUMENT	3	5	5	7	6	6	12	20
HARRIS	14	13	22	31	37	34	35	47
INTERCIL	7	7	12	19	30	38	40	36
ITT	18	23	24	26	29	33	32	34
MICRO POWER SYSTEMS								10
MOTOROLA 1	48	59	67	96	123	140	166	163
NATIONAL SEMICONDUCTOR 1	70	67	88	118	170	208	218	220
PRECISION MONOLITHICS		7	12	16	23	32	34	40
RAYTHEON	10	11	12	14	17	18	20	20
RCA	41	38	47	58	64	67	76	70
SIGNETICS	17	28	40	50	55	58	62	58
SILICONIX	7	8	9	20	24	27	23	25
SOLITRON	2	2	2	2	2	2	2	2
SPRAGUE	6	9	17	27	38	44	46	41
TELEDYNE	5	3	2	2	2	2	2	2
TEXAS INSTRUMENTS	55	71	92	135	170	205	215	235
TRW	7	5	7	7	14	16	20	31
UNITRODE 1	0	0	0	0	0	0	0	2
OTHERS	25	15	34	37	41	57	56	39
JAPANESE COMPANIES	120	249	320	514	602	808	1,111	1,061
FUJITSU			5	6	8	12	18	18
HITACHI	22	39	45	70	77	88	119	106
MATSUSHITA	16	31	44	55	57	79	176	153
MITSUBISHI	7	12	18	30	37	59	75	63
NIPPON ELECTRIC	37	60	62	77	98	131	165	153
OKI							2	1
SANYO				70	87	105	113	106
SHARP							23	23
TOSHIBA	19	47	59	93	76	101	130	101
OTHERS	19	60	87	113	162	233	290	337
EUROPEAN COMPANIES	101	145	181	220	312	351	315	351
FERRANTI			8	10	11	15	16	23
PHILIPS 1			78	96	143	152	130	135
PLESSEY			6	10	13	16	13	14
SGS-ATES			32	37	50	55	63	76
SIEMENS			27	28	42	48	38	40
TELEFUNKEN ELECTRONIC 5			10	16	22	28	27	31
THOMSON 7			19	22	30	36	27	31
OTHERS			1	1	1	1	1	1
REST OF WORLD	0	0	2	0	0	3	7	8
OTHERS	0	0	2	0	0	3	7	8

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-26

TOTAL DISCRETE MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	2,037	2,598	2,843	3,204	3,414	3,673	3,781	3,337
US COMPANIES	1,053	1,238	1,269	1,383	1,611	1,678	1,601	1,427
ACRIAN								17
COMMUNICATIONS TRANSISTOR 6			6	7	9	9	10	0
FAIRCHILD	72	78	83	87	90	81	76	62
GENERAL ELECTRIC	79	101	102	102	114	120	101	89
GENERAL INSTRUMENT	25	33	40	50	67	74	74	73
GENERAL MOTORS	13	13	12	12	15	15	13	0
GENERAL SEMICONDUCTOR					12			
HEWLETT-PACKARD	4	5	12	15	20	24	22	20
INTERFIL	3	4	6	6	7	7	9	9
INTERNATIONAL RECTIFIER	44	48	59	67	77	88	84	80
ITT	80	97	84	88	93	100	96	100
MOTOROLA	239	288	313	349	413	422	451	419
NATIONAL SEMICONDUCTOR	32	35	29	35	45	47	43	44
RAYTHEON	11	12	13	13	14	14	17	18
RCA	78	90	97	105	118	127	94	79
SILICONIX	9	11	13	15	19	18	25	25
SOLID STATE SCIENTIFIC 1	4	5	5	7	0	0	0	0
SOLITRON	10	13	15	16	23	26	24	24
SPRAGUE	4	6	6	6	5	5	5	5
SUPERTEX	0	0	0	0	0	2	3	3
TELEDYNE	9	8	7	6	4	4	4	4
TEXAS INSTRUMENTS	177	174	170	176	184	191	150	90
TRW	27	31	34	37	32	51	58	55
UNITRODE	25	29	33	40	60	70	70	73
VARO	24	33	36	37	38	40	31	28
WESTINGHOUSE	29	38	40	47	58	65	59	53
OTHERS	55	86	54	60	94	78	82	57
JAPANESE COMPANIES	479	778	927	1,077	963	1,077	1,426	1,172
FUJITSU			21	24	25	26	25	23
HITACHI	114	145	144	196	173	228	275	240
MATSUSHITA	82	131	130	157	124	152	181	146
MITSUBISHI	31	75	83	77	69	80	109	94
NIPPON ELECTRIC	101	157	176	209	201	213	291	250
OKI							10	10
SANYO				32	37	44	67	56
SHARP							10	7
TOSHIBA	78	131	141	192	187	241	304	217
OTHERS	73	139	232	190	147	93	154	129
EUROPEAN COMPANIES	505	578	643	740	830	908	744	728
ASEA-HAFO			1	2	2	3	4	5
FERRANTI			9	12	13	18	14	14
PHILIPS			234	246	260	273	219	208
PLESSEY			3	4	4	4	4	4
SGS-ATES			39	44	49	58	50	49
SEMIKRON			19	23	28	31	29	40
SIEMENS			135	151	165	175	146	131
TELEFUNKEN ELECTRONIC 5			71	91	110	119	82	82
THOMSON 7			78	100	120	140	121	122
OTHERS			54	67	79	87	75	73
REST OF WORLD	0	4	4	4	10	10	10	10
OTHERS	0	4	4	4	10	10	10	10

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-27

TRANSISTOR MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	1,070	1,333	1,480	1,593	1,642	1,749	1,893	1,666
US COMPANIES	562	637	640	690	794	827	822	748
ACRIAN								17
COMMUNICATIONS TRANSISTOR 6			6	7	9	9	10	0
FAIRCHILD	46	51	51	54	55	37	35	28
GENERAL ELECTRIC	27	30	30	27	31	33	33	35
GENERAL INSTRUMENT	1	1	0	0	0	0	0	0
GENERAL MOTORS	8	8	10	10	12	12	11	0
HEWLETT-PACKARD	3	4	8	10	12	15	13	11
INTERSIL	3	4	6	6	7	7	9	9
INTERNATIONAL RECTIFIER	2	3	5	6	10	14	14	18
ITT	25	31	20	20	21	23	21	24
MOTOROLA	159	191	200	220	262	273	296	276
NATIONAL SEMICONDUCTOR	31	34	29	35	45	47	43	44
RAYTHEON	8	8	10	13	14	14	17	18
RCA	56	64	70	75	85	91	74	61
SILICONIX	9	11	13	15	19	18	25	25
SOLID STATE SCIENTIFIC 1	2	3	5	7	0	0	0	0
SOLITRON	6	9	10	10	14	15	16	16
SPRAGUE	4	6	6	6	5	5	5	5
SUPERTEX	0	0	0	0	0	2	3	3
TELEDYNE	3	3	3	3	4	4	4	4
TEXAS INSTRUMENTS	136	127	124	129	134	138	115	80
TRW	23	26	28	30	32	51	58	55
UNITRODE	2	2	2	3	6	8	9	10
WESTINGHOUSE	0	0	0	1	1	1	1	1
OTHERS	8	21	4	3	16	10	10	8
JAPANESE COMPANIES	278	434	520	548	457	500	715	579
FUJITSU				24	25	26	25	23
HITACHI				76	76	87	108	90
MATSUSHITA				105	80	90	110	94
MITSUBISHI				30	26	30	39	33
NIPPON ELECTRIC				118	107	102	171	145
OKI							5	5
SANYO				13	7	10	17	14
SHARP							6	4
TOSHIBA				110	87	122	157	108
OTHERS				70	49	33	77	63
EUROPEAN COMPANIES	230	258	316	351	386	417	351	334
FERRANTI			3	5	6	9	7	7
PHILIPS			141	148	156	155	132	126
PLESSEY			2	2	2	2	2	2
SGS-ATES			38	43	48	57	50	49
SIEMENS			63	71	77	82	68	60
TELEFUNKEN ELECTRONIC 5			26	32	40	43	30	30
THOMSON 7			31	36	38	51	45	46
OTHERS			12	14	19	18	17	14
REST OF WORLD	0	4	4	4	5	5	5	5
OTHERS	0	4	4	4	5	5	5	5

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-28

SMALL SIGNAL TRANSISTOR MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	638	793	813	870	857	881	1,013	857
US COMPANIES	302	332	305	331	377	384	384	336
FAIRCHILD	33	33	32	37	40	36	35	28
GENERAL ELECTRIC	23	24	22	20	22	23	23	24
GENERAL INSTRUMENT	1	1	0	0	0	0	0	0
HEWLETT-PACKARD	1	1	2	3	4	5	4	4
INTERSIL	3	4	6	6	7	7	7	7
ITT	25	31	20	20	21	23	21	24
MOTOROLA	84	102	102	115	137	143	154	138
NATIONAL SEMICONDUCTOR	21	25	19	24	32	33	29	29
RAYTHEON	8	8	10	13	14	14	17	17
RCA	1	1	2	3	5	5	7	5
SILICONIX	9	11	13	13	16	15	19	15
SOLITRON	1	2	2	2	2	2	2	2
SPRAGUE	4	6	6	6	5	5	5	5
TELEDYNE	3	3	3	3	4	4	4	4
TEXAS INSTRUMENTS	79	65	62	63	64	65	52	30
TRW	1	1	1	1	1	2	3	2
OTHERS	5	14	3	2	3	2	2	2
JAPANESE COMPANIES	179	287	316	329	253	268	438	342
EUROPEAN COMPANIES	157	170	188	206	222	224	186	174
FERRANTI			2	3	3	4	3	4
PHILIPS			98	103	107	102	88	86
PLESSEY			2	2	2	2	2	2
SGS-ATES			18	20	21	23	21	17
SIEMENS			31	35	37	37	31	27
TELEFUNKEN ELECTRONICS			21	25	30	30	18	17
THOMSON			10	12	14	19	16	16
OTHERS			6	6	8	7	7	5
REST OF WORLD	0	4	4	4	5	5	5	5
OTHERS	0	4	4	4	5	5	5	5

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-29

POWER TRANSISTOR MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	432	540	667	723	785	868	880	809
US COMPANIES	260	305	335	359	417	443	438	412
ACRIAN								17
COMMUNICATIONS TRANSISTOR 6			6	7	9	9	10	0
FAIRCHILD	13	18	19	17	15	1	0	0
GENERAL ELECTRIC	4	6	8	7	9	10	10	11
GENERAL MOTORS	8	8	10	10	12	12	11	0
HEWLETT-PACKARD	2	3	6	7	8	10	9	7
INTERCIL	0	0	0	0	0	0	2	2
INTERNATIONAL RECTIFIER	2	3	5	6	10	14	14	18
MOTOROLA	75	89	98	105	125	130	142	138
NATIONAL SEMICONDUCTOR	10	9	10	11	13	14	14	15
RAYTHEON	0	0	0	0	0	0	0	1
RCA	55	63	68	72	80	86	67	56
SILICONIX	0	0	0	2	3	3	6	10
SOLID STATE SCIENTIFIC 1	2	3	5	7	0	0	0	0
SOLITRON	5	7	8	8	12	13	14	14
SUPERTEX	0	0	0	0	0	2	3	3
TEXAS INSTRUMENTS	57	62	62	66	70	73	63	50
TRW	22	25	27	29	31	49	55	53
UNITRODE	2	2	2	3	6	8	9	10
WESTINGHOUSE	0	0	0	1	1	1	1	1
OTHERS	3	7	1	1	13	8	8	6
JAPANESE COMPANIES	99	147	204	219	204	232	277	237
EUROPEAN COMPANIES	73	88	128	145	164	193	165	160
FERRANTI			1	2	3	5	4	3
PHILIPS			43	45	49	53	44	40
SGS-ATES			20	23	27	34	29	32
SIEMENS			32	36	40	45	37	33
TELEFUNKEN ELECTRONIC 5			5	7	10	13	12	13
THOMSON 7			21	24	24	32	29	30
OTHERS			6	8	11	11	10	9

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-30

DIODE MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	709	911	951	1,130	1,231	1,353	1,332	1,165
US COMPANIES	351	423	428	484	562	598	556	496
FAIRCHILD	24	25	30	33	35	44	41	34
GENERAL ELECTRIC	28	37	37	27	31	33	23	15
GENERAL INSTRUMENT	24	32	40	50	67	74	74	73
GENERAL MOTORS	5	5	2	2	3	3	2	0
GENERAL SEMICONDUCTOR					6			
HEWLETT-PACKARD	1	1	4	5	8	9	9	9
INTERNATIONAL RECTIFIER	29	30	37	41	44	48	47	42
ITT	50	60	55	57	60	66	64	67
MOTOROLA	64	75	89	104	118	116	121	113
RCA	0	1	2	2	2	2	2	2
SOLID STATE SCIENTIFIC	2	2	0	0	0	0	0	0
SOLITRON	4	4	5	6	9	11	8	8
TELEDYNE	6	5	4	3	0	0	0	0
TEXAS INSTRUMENTS	30	32	31	34	37	39	25	5
TRW	4	5	6	7	0	0	0	0
UNITRODE	19	23	26	32	46	54	52	53
VARO	24	33	36	37	38	40	31	28
WESTINGHOUSE	14	16	15	17	21	24	22	20
OTHERS	23	37	9	27	37	35	35	27
JAPANESE COMPANIES	157	252	294	378	361	411	505	403
HITACHI				88	87	113	135	120
MATSUSHITA				44	36	47	55	38
MITSUBISHI				18	16	21	22	19
NIPPON ELECTRIC				68	65	80	84	73
SANYO				12	18	20	30	25
SHARP							4	3
TOSHIBA				62	65	88	112	80
OTHERS				86	74	42	63	45
EUROPEAN COMPANIES	201	236	229	268	303	339	266	261
FERRANTI			6	7	7	9	7	7
PHILIPS			85	89	94	109	80	76
PLESSEY			1	2	2	2	2	2
SGS-ATES			1	1	1	1	0	0
SEMIKRON			7	8	10	11	10	15
SIEMENS			50	56	60	63	53	48
TELEFUNKEN ELECTRONICS			32	42	49	52	38	38
THOMSON			36	49	65	70	59	58
OTHERS			11	14	15	22	17	17
REST OF WORLD	0	0	0	0	5	5	5	5
OTHERS	0	0	0	0	5	5	5	5

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-31

SMALL SIGNAL DIODE MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	211	286	301	366	424	452	422	350
US COMPANIES	105	123	108	119	141	151	142	120
FAIRCHILD	21	21	23	25	29	32	30	25
GENERAL ELECTRIC	5	6	6	4	3	3	1	0
GENERAL INSTRUMENT	11	16	19	26	34	38	42	40
HEWLETT-PACKARD	0	0	1	2	3	3	3	3
ITT	26	32	25	26	30	30	30	31
SOLID STATE SCIENTIFIC	2	2	0	0	0	0	0	0
TELEDYNE	3	2	1	0	0	0	0	0
TEXAS INSTRUMENTS	19	20	19	20	22	22	13	0
UNITRODE	4	5	6	9	13	15	15	15
OTHERS	14	19	8	7	7	8	8	6
JAPANESE COMPANIES	34	77	88	110	115	130	158	116
EUROPEAN COMPANIES	72	86	105	137	163	166	117	109
FERRANTI			5	6	6	8	6	6
PHILIPS			54	57	59	69	47	44
PLESSEY			1	2	2	2	2	2
SGS-ATES			1	1	1	1	0	0
SIEMENS			23	29	33	31	28	26
TELEFUNKEN ELECTRONIC 5			13	23	29	28	20	19
THOMSON7			6	16	29	20	9	8
OTHERS			2	3	4	7	5	4
REST OF WORLD	0	0	0	0	5	5	5	5
OTHERS	0	0	0	0	5	5	5	5

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B—Market Share Estimates

Table B-32

POWER DIODE MARKET SHARE ESTIMATES
(Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	398	504	534	626	663	738	738	653
US COMPANIES	189	238	257	289	339	362	328	295
FAIRCHILD	2	3	5	7	5	7	4	3
GENERAL ELECTRIC	23	31	31	23	28	30	22	15
GENERAL INSTRUMENT	13	16	21	24	33	36	32	33
GENERAL MOTORS	2	3	1	1	2	2	1	0
GENERAL SEMICONDUCTOR					2			
HEWLETT-PACKARD	0	0	1	1	2	3	3	3
INTERNATIONAL RECTIFIER	26	27	34	39	43	47	46	41
ITT	15	18	19	19	19	22	21	22
MOTOROLA	38	45	57	68	78	76	79	72
RCA	0	1	2	2	2	2	2	2
SOLITRON	4	4	5	6	9	11	8	8
TEXAS INSTRUMENTS	7	8	8	10	11	13	10	5
TRW	4	5	6	7	0	0	0	0
UNITRODE	11	13	16	18	26	31	29	29
VARO	24	33	36	37	38	40	31	28
WESTINGHOUSE	14	16	15	17	21	24	22	20
OTHERS	6	15	0	10	20	18	18	14
JAPANESE COMPANIES	107	150	179	233	213	243	294	240
EUROPEAN COMPANIES	102	116	98	104	111	133	116	118
PHILIPS			24	25	28	32	27	26
SEMİKRON			7	8	10	11	10	15
SIEMENS			24	24	24	27	22	19
TELEFUNKEN ELECTRONICS			17	17	18	21	16	17
THOMSON			18	20	22	31	31	31
OTHERS			8	10	9	11	10	10

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-33

ZENER DIODE MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	100	121	116	138	144	163	172	162
US COMPANIES	57	62	63	76	82	85	86	81
FAIRCHILD	1	1	2	1	1	5	7	6
GENERAL MOTORS	3	2	1	1	1	1	1	0
GENERAL SEMICONDUCTOR					4			
HEWLETT-PACKARD	1	1	2	2	3	3	3	3
INTERNATIONAL RECTIFIER	3	3	3	2	1	1	1	1
ITT	9	10	11	12	11	14	13	14
MOTOROLA	26	30	32	36	40	40	42	41
TELEDYNE	3	3	3	3	0	0	0	0
TEXAS INSTRUMENTS	4	4	4	4	4	4	2	0
UNITRODE	4	5	4	5	7	8	8	9
OTHERS	3	3	1	10	10	9	9	7
JAPANESE COMPANIES	16	25	27	35	33	38	53	47
EUROPEAN COMPANIES	27	34	26	27	29	40	33	34
FERRANTI			1	1	1	1	1	1
PHILIPS			7	7	7	8	6	6
SIEMENS			3	3	3	5	3	3
TELEFUNKEN ELECTRONICS			2	2	2	3	2	2
THOMSON			12	13	14	19	19	19
OTHERS			1	1	2	4	2	3

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-34

THYRISTOR MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	180	241	305	338	372	407	374	331
US COMPANIES	96	124	148	148	179	190	160	134
GENERAL ELECTRIC	19	29	30	38	41	43	34	28
INTERNATIONAL RECTIFIER	13	15	17	20	23	26	23	20
ITT			1	0	0	0	0	0
MOTOROLA	13	18	21	22	25	26	27	23
RAYTHEON	2	3	3	0	0	0	0	0
RCA	17	21	24	27	30	33	18	16
TEXAS INSTRUMENTS	4	8	8	7	7	8	6	3
UNITRODE	3	3	4	4	6	7	7	8
WESTINGHOUSE	15	22	25	29	36	40	36	32
OTHERS	10	5	15	1	11	7	9	4
JAPANESE COMPANIES	26	49	69	85	81	93	114	95
HITACHI				10	10	14	16	11
MATSUSHITA				3	3	4	5	4
MITSUBISHI				19	17	21	29	25
NIPPON ELECTRIC				10	15	17	21	18
SANYO				7	12	14	19	16
TOSHIBA				14	17	19	21	16
OTHERS				22	7	4	3	5
EUROPEAN COMPANIES	58	68	88	105	112	124	100	102
ASEA-HAFO			1	1	1	2	2	3
PHILIPS			8	8	8	8	6	5
SEMIKRON			8	10	10	12	11	14
SIEMENS			22	24	26	28	23	20
TELEFUNKEN ELECTRONICS			13	17	19	22	13	13
THOMSON 7			11	15	16	18	16	16
OTHERS			25	30	32	34	29	31

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-35

OTHER DISCRETE MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	78	113	107	143	169	164	182	175
US COMPANIES	44	54	53	61	76	63	63	49
FAIRCHILD	2	2	2	0	0	0	0	0
GENERAL ELECTRIC	5	5	5	10	11	11	11	11
GENERAL SEMICONDUCTOR					6			
ITT	5	6	8	11	12	11	11	9
MOTOROLA	3	4	3	3	8	7	7	7
NATIONAL SEMICONDUCTOR	1	1	0	0	0	0	0	0
RAYTHEON	1	1	0	0	0	0	0	0
RCA	5	4	1	1	1	1	0	0
TEXAS INSTRUMENTS	7	7	7	6	6	6	4	2
UNITRODE	1	1	1	1	2	1	2	2
OTHERS	14	23	26	29	30	26	28	18
JAPANESE COMPANIES	18	43	44	66	64	73	92	95
HITACHI				20	0	14	16	19
MATSUSHITA				5	5	11	11	10
mitsubishi				10	10	8	19	17
NIPPON ELECTRIC				13	14	14	15	14
OKI							5	5
SANYO				0	0	0	1	1
TOSHIBA				6	18	12	14	13
OTHERS				12	17	14	11	16
EUROPEAN COMPANIES	16	16	10	16	29	28	27	31
ASEA-HAFO				1	1	1	2	2
PHILIPS				1	2	1	1	1
SEMIKRON			4	5	8	8	8	11
SIEMENS					2	2	2	3
TELEFUNKEN ELECTRONIC 5					2	2	1	1
THOMSON 7					1	1	1	2
OTHERS			6	9	13	13	12	11

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-36

TOTAL OPTOELECTRONIC MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	225	288	309	426	589	703	726	728
US COMPANIES	183	213	201	268	359	400	371	359
FAIRCHILD	20	25	16	18	26	24	16	15
GENERAL ELECTRIC	4	6	7	9	12	14	17	15
GENERAL INSTRUMENT 1	0	0	0	0	39	44	40	37
HEWLETT-PACKARD	30	38	40	54	65	71	62	60
INTERNATIONAL RECTIFIER	1	1	1	2	2	2	2	2
ITT			2	2	1	1	1	0
LITRONIX	17	16	15	16	31	34	31	33
MONSANTO 1	17	21	19	30	0	0	0	0
MOTOROLA	3	2	2	2	6	8	9	9
NATIONAL SEMICONDUCTOR	15	11	8	11	15	16	13	9
RCA	0	1	1	6	8	8	7	9
SPECTRONICS	5	7	11	11	15	17	17	17
TEXAS INSTRUMENTS	43	60	57	66	76	84	70	60
TRW					13	30	36	34
OTHERS	28	25	22	39	50	47	50	59
JAPANESE COMPANIES	22	45	63	94	149	209	273	275
FUJITSU			8	9	10	13	15	13
HITACHI	1	2	8	10	11	20	30	30
MATSUSHITA	4	6	2	11	10	18	29	31
MITSUBISHI	0	1	2	0	0	0	0	0
NIPPON ELECTRIC	3	4	6	10	14	21	21	20
SANYO							32	31
SHARP							10	10
TOSHIBA	7	15	11	20	35	56	76	69
OTHERS	7	17	26	34	69	81	60	71
EUROPEAN COMPANIES	20	30	45	64	81	94	82	93
ASEA-HAFO			1	1	1	1	1	1
PHILIPS			9	18	21	23	19	19
PLESSEY			3	4	4	4	3	3
SIEMENS			32	35	44	50	36	38
TELEFUNKEN ELECTRONICS			0	5	8	13	18	25
OTHERS			0	1	3	3	5	7
REST OF WORLD	0	0	0	0	0	0	0	1
OTHERS	0	0	0	0	0	0	0	1

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-37

LED LAMPS MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	32	54	77	103	126	147	151	150
US COMPANIES	24	29	32	39	48	53	42	41
FAIRCHILD	3	4	4	5	7	6	4	4
GENERAL INSTRUMENT 1	0	0	0	0	10	11	8	11
HEWLETT-PACKARD	4	5	6	8	9	10	9	7
ITT			2	2	1	1	1	0
LITRONIX	4	3	3	2	4	4	4	4
MONSANTO 1	4	5	6	9	0	0	0	0
NATIONAL SEMICONDUCTOR	2	3	3	4	4	5	4	3
TEXAS INSTRUMENTS	4	6	6	8	10	12	9	8
OTHERS	3	3	2	1	3	4	3	4
JAPANESE COMPANIES	3	17	25	37	46	61	81	77
EUROPEAN COMPANIES	5	8	20	27	32	33	28	31
PHILIPS			4	6	8	7	6	6
PLESSEY			3	4	4	4	3	3
SIEMENS			13	13	15	16	10	10
TELEFUNKEN ELECTRONICS			0	3	3	4	6	9
OTHERS			0	1	2	2	3	3
REST OF WORLD	0	0	0	0	0	0	0	1
OTHERS	0	0	0	0	0	0	0	1

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-38

LED DISPLAYS MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	128	151	140	191	248	275	277	278
US COMPANIES	111	120	97	130	166	170	145	139
FAIRCHILD	13	16	9	10	15	14	9	8
GENERAL INSTRUMENT 1	0	0	0	0	13	15	11	15
HEWLETT-PACKARD	20	26	26	33	41	44	39	37
LITRONIX	12	11	11	12	21	23	20	19
MONSANTO 1	8	11	8	10	0	0	0	0
NATIONAL SEMICONDUCTOR	13	8	5	7	11	11	9	6
SPECTRONICS	1	2	3	3	2	2	2	2
TEXAS INSTRUMENTS	24	30	28	32	37	40	34	28
OTHERS	20	16	7	23	26	21	21	24
JAPANESE COMPANIES	10	20	28	40	59	81	111	112
EUROPEAN COMPANIES	7	11	15	21	23	24	21	27
PHILIPS			2	7	5	5	4	4
SIEMENS			13	13	15	15	10	12
TELEFUNKEN ELECTRONICS			0	1	2	3	5	7
OTHERS			0	0	1	1	2	4

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-39

OPTICAL COUPLERS MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	22	29	35	52	83	99	104	101
US COMPANIES	17	24	26	37	60	68	72	69
FAIRCHILD	2	3	2	2	3	3	2	2
GENERAL ELECTRIC	3	5	7	9	12	14	17	15
GENERAL INSTRUMENT 1	0	0	0	0	8	10	12	9
HEWLETT-PACKARD	3	4	5	7	8	9	8	7
LITRONIX	1	2	1	2	4	5	4	5
MONSANTO 1	5	5	5	7	0	0	0	0
MOTOROLA	0	0	0	0	3	4	7	7
SPECTRONICS	0	1	1	1	2	3	3	3
TEXAS INSTRUMENTS	3	4	4	6	8	10	9	8
OTHERS	0	0	1	3	12	10	10	13
JAPANESE COMPANIES	3	3	5	8	11	14	16	15
EUROPEAN COMPANIES	2	2	4	7	12	17	16	17
PHILIPS			1	2	4	6	5	5
SIEMENS			3	5	7	9	8	8
TELEFUNKEN ELECTRONICS			0	0	1	2	3	4

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

Table B-40

OTHER TOTAL OPTOELECTRONICS MARKET SHARE ESTIMATES (Millions of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982
TOTAL MARKET	43	54	57	80	132	182	194	199
US COMPANIES	31	40	46	62	85	109	112	110
FAIRCHILD	2	2	1	1	1	1	1	1
GENERAL ELECTRIC	1	1	0	0	0	0	0	0
GENERAL INSTRUMENT 1	0	0	0	0	8	8	9	2
HEWLETT-PACKARD	3	3	3	6	7	8	6	9
INTERNATIONAL RECTIFIER	1	1	1	2	2	2	2	2
LITRONIX	0	0	0	0	2	2	3	5
MONSANTO 1	0	0	0	4	0	0	0	0
MOTOROLA	3	2	2	2	3	4	2	2
RCA	0	1	1	8	8	8	7	9
SPECTRONICS	4	4	7	7	11	12	12	12
TEXAS INSTRUMENTS	12	20	19	20	21	22	18	16
TRW	0	0	0	0	13	30	36	34
OTHERS	5	6	12	12	9	12	16	18
JAPANESE COMPANIES	6	5	5	9	33	53	65	71
EUROPEAN COMPANIES	6	9	6	9	14	20	17	18
ASEA-HAFO			1	1	1	1	1	1
PHILIPS			2	3	4	5	4	4
SIEMENS			3	4	7	10	8	8
TELEFUNKEN ELECTRONIC 5			0	1	2	4	4	5

Note: For footnotes, see the last page of this Appendix.

Source: DATAQUEST

Appendix B — Market Share Estimates

FOOTNOTES

1. Totals include the following estimated amounts of hybrid ICs; Motorola (1979, 1980) - \$15 million and \$18 million; NSC (1979, 1980) - \$40 million and \$46 million; Unitrode (1978, 1979) - \$9 million and \$17 million; Philips (1979, 1980) - \$55 million.
2. In June 1979, Monsanto Optoelectronics Division was acquired by and totally incorporated into General Instrument. The 1979 and succeeding years' revenues will be included under General Instrument.
3. In 1979, Solid State Scientific, Inc., sold its RF Power Transistor line to Thomson-CSF. All 1979 revenues from this division are included under Thomson.
4. Commodore revenue in 1981 and 1982 represents solely merchant market estimates. In 1982, Commodore ceased selling into the merchant market; hence, the reason for the decline illustrated.
5. TELEFUNKEN electronic was formerly called AEG-Telefunken.
6. Communications Transistor was acquired by Acrian in October 1982. Revenues from 1982 and later will be reported under Acrian.
7. Thomson includes revenue from the Thomson-CSF and the Thomson-EPCIS groups from 1977 through 1982.

Final Market Share Estimates

These Market Share Estimates provide our final estimates of 1987. The tables cover history for the period 1983 to 1987 for all categories of semiconductors.

BACKGROUND

An integral part of Dataquest's Semiconductor Industry Service data base is analyzing the semiconductor markets by estimating each manufacturer's market share. These analyses provide insights into semiconductor markets and reinforce estimates of consumption, production, and company revenue that were made using other data. Table 1 gives market share estimates for the total worldwide merchant semiconductor market. Tables 2, 17, and 22 further segment the semiconductor market into integrated circuits, discrete devices, and optoelectronic devices. Each of these categories is divided into a number of subgroups, and some subgroups are further segmented. In general, these product divisions are self-explanatory. Since 1979, the bipolar digital and MOS segments have been divided both by function and by technology. Special discrete semiconductor devices that are neither transistors, diodes, nor thyristors are categorized as "Other" and shown in Table 21. An index of all tables is included for easy reference.

The semiconductor market is divided among U.S. companies, European companies, Japanese companies, and Rest-of-World (ROW) companies, based on the location of their main offices. All of the major U.S., European, and Japanese companies are included.

The totals given for U.S. companies reflect worldwide production. For example, even though Texas Instruments manufactures semiconductors in many parts of the world, its entire production is included under the U.S. companies market share section. In contrast, some, but not all foreign-owned subsidiaries, such as Fairchild (Schlumberger), are included in the U.S. totals and not in the total of the parent company location. A U.S. subsidiary of a foreign company is included in the U.S. companies' section if it maintains its own identity, i.e., carries its own name rather than that of its parent company and functions as an independent entity. The total for U.S. companies, therefore, is not the same as for U.S. semiconductor consumption.

MERCHANT VS. CAPTIVE CONSUMPTION

Dataquest includes all revenue, both merchant and captive, for semiconductor suppliers selling to the merchant market. The data excludes totally captive suppliers where devices are manufactured solely for the company's own use. A product that is used internally is valued at market price rather than at transfer or factory price.

Final Market Share Estimates

Hybrid Circuits

Because of reporting methods previously used by the Electronic Industries Association (EIA) and the Japanese Ministry for International Trade and Industry (MITI), hybrid devices are included as a product segment of integrated circuits only for the years prior to 1973. This segmentation was somewhat artificial because hybrid devices are primarily a special packaging arrangement. As a result, Dataquest has deleted this. Hybrids are included under Linear, Table 16, for principal hybrid suppliers that do wafer fabrication. Only those hybrids are included that are made in the division or other organization whose primary product is semiconductors. Several major manufacturers also manufacture hybrids in other divisions; where we have identified these manufacturers, they are excluded.

Exchange Rate Conventions

Estimates of Japanese consumption or factory shipments use the exchange rate (dollar/yen) for the given year. Refer to Table 0 for the exchange rates used. In viewing the year-to-year Japanese market growth rate, one must consider the different exchange rates in effect during the year. For the European market, the value of shipments is estimated directly in dollars.

Notes

Notes to the tables appear at the end of this study.

DATA SOURCES

In both the United States and Europe, there is no official body—government organization, industry association, or trade publication—that maintains complete or even near-complete statistics on the semiconductor industry. In Japan, some statistics are kept by MITI. We believe that the estimates presented here are the most accurate and meaningful generally available today. The sources of the data presented in the tables are:

- Revenue published by major industry participants
- Estimates made by knowledgeable and reliable industry spokespersons
- Government data or trade association data such as those from SIA, MITI, and EIA
- Published product literature and price lists

Final Market Share Estimates

- Interviews with knowledgeable manufacturers, distributors, and users
- Relevant projected world economic data

NEED FOR CAREFUL INTERPRETATION

Construction of the tables involves combining data from many countries, each of which has different and changing exchange rates. Dataquest uses average exchange rates for each year and, as far as possible, the estimates are prepared in terms of local currencies before conversion to U.S. dollars or yen.

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, careful attention must be paid to the definitions and assumptions used herein when interpreting the estimates presented in these tables. Various companies, government agencies, and trade associations may use slightly different definitions of product categories and regional groupings, or they may include different companies in their summaries. These differences should be kept in mind when making comparisons between these data and those provided by others.

Final Market Share Estimates

INDEX OF TABLES

<u>Title</u>	<u>Table</u>
Total Semiconductor	1
Total Integrated Circuit	2
Bipolar Digital (Technology)	3
TTL	4
ECL	5
Other	6
Bipolar Digital (Function)	
Memory	7
Logic	8
MOS (Technology)	9
NMOS	10
PMOS	11
CMOS	12
Memory	13
Micro Devices	14
Logic	15
Linear	16
Total Discrete	17
Transistor	18
Diode	19
Thyristor	20
Other	21
Total Optoelectronic	22

Final Market Share Estimates

Table 1

Total Semiconductor Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	19,537	28,825	24,341	30,834	38,137
US Companies	9,565	13,948	11,051	12,809	14,980
Acrlan	18	21	18	13	15
Advanced Micro Devices	505	937	615	828	985
Altera			4	12	21
AMCC	7	18	21	19	27
Analog Devices	145	218	226	243	265
AT&T				983	802
Burr-Brown		71	78	113	120
Catalyst					2
Cherry Semiconductor	13	16	14	22	29
Chips & Technologies				41	112
Cosmosore					
Cypress Semiconductor Corp.		4	18	50	78
Esar		38	32	41	44
EXEL		1	4		
Fairchild	455	665	492		
GE Solid State	115	136	118	521	569
General Instrument	241	272	208	218	248
Gould AMI Semiconductors	162	164	140	155	155
GTE Microcircuits	19	24	27	22	24
Harris	171	256	247	267	268
Hewlett-Packard	130	182	206	218	243
Holt		10	12	12	14
Honeywell	24	64	88	137	151
Hughes	25	32	36	39	44
Imi		10	12	12	13
IMP	16	28	25	32	42
ITT	185	250	270	312	357
Integrated Device Technology	10	33	51	72	98
Intel	775	1,201	1,020	991	1,491
Interdesign	25	34	31		
International Rectifier	84	115	128	125	151
Intersil	80	89	79		
Lattice			3	10	13
Linear Technology	4	16	19	29	43
Litronix					
LSI Logic	32	84	140	197	263
Monolithic Memories	131	200	172		
Micro Power Systems	19	26	28	32	23
Micron Technology	24	117	36	63	115
Mitel		35	29	33	39
Motek	315	467	110		
Motorola	1,647	2,319	1,830	2,025	2,430
NCR	75	80	75	94	104
National Semiconductor	914	1,213	925	1,427	1,506
Powerex				94	106
Precision Monolithics	50	70	64	73	79
RCA	297	402	310		
Raytheon	65	95	79	84	85
Rockwell	57	57	44	124	171
Saratoga Semiconductor					4
SEEQ	9	53	33	32	50
Solid State Scientific	33	40			
Siemens Semiconductor				8	24
Siliconix	70	97	110	112	115
Silicon Systems	28	64	51	75	88
Solitron	33	37	38	42	47
Sprague	55	84	115	122	124
Standard Microsystems	42	70	54	54	41
Supertex	10	13	13	17	19
Synartek	96	60			

(Continued)

Final Market Share Estimates

Table 1 (Continued)

Total Semiconductor Market Share Estimates (Millions of Dollars)

Texas Instruments	1,638	2,484	1,742	1,781	2,127
Teledyne	22	23	16	25	33
TRW	118	147	125	105	117
Unitrode	81	106	89	82	71
Universal		7	9	10	7
VLSI			1		
Vitellic				4	8
VLSI Technology	36	69	78	112	172
Varo	27	27	22	17	21
VTC			24	37	43
Waferscale				8	20
Weitek				17	20
Western Digital	47	68	56	53	70
Westinghouse	58	52	52		
Xicor	16	39	32	41	63
Xilinx				4	11
Zilog	70	88	59	64	75
Zynex	10	22	17	18	26
Others	231	228	231	186	241
Japanese Companies	7,583	11,456	10,144	14,160	18,261
Fujitsu	673	1,190	1,019	1,362	1,801
Fuji Electric	124	175	157	205	252
Hitachi	1,277	2,051	1,671	2,157	2,532
Matsushita	600	928	906	1,176	1,480
Mitsubishi	505	964	662	1,123	1,494
NEC	1,413	2,251	1,984	2,615	3,368
New JRC				92	141
OKI	229	362	307	428	651
Ricoh				55	65
Rohm	151	252	247	413	518
Sanken	103	162	156	224	294
Sanyo	351	455	457	615	851
Seiko Epson		115	93	165	245
Sharp	279	337	328	433	590
Sony	128	169	252	458	573
Toshiba	983	1,561	1,468	2,281	3,002
Others	767	484	438	358	404
European Companies	2,215	3,183	2,851	3,443	4,226
ASEA-HARO	14	22	28	64	103
Brown-Boveri	20	25	29		
Eurosil	15	20	21	32	25
Ferranti	85	105	98	110	122
Imms	58	146	85	80	91
Matra-Harris	13	41	42	44	60
Medi	25	31	35	39	47
Philips-Signetics	917	1,325	1,065	1,361	1,603
Piher	5	6	14	7	
Plessey	61	82	99	112	120
Rifa	7	11	12	14	41
Semikron	36	40	48	72	79
SGS Thomson	230	335	300	696	859
Siemens	333	450	420	502	657
STC	34	40	17	18	12
Tag	17	20	18	18	21
Telefunken Electronic	134	161	170	219	273
Thomson	195	301	324		
Others	16	22	26	55	113

(Continued)

Final Market Share Estimates

Table 1 (Continued)

Total Semiconductor Market Share Estimates (Millions of Dollars)

Rest of World Companies	174	238	295	422	670
Euro	25	32	28	20	30
Gold Star		15	33	50	69
Hyundai				18	35
KEC	26	38	42	50	78
MIL					
Samsung	40	60	95	170	322
United Microelectronics	23	27	33	69	91
Others	60	66	66	45	45

Source: Dataquest
September 1988

Final Market Share Estimates

Table 2

Total Integrated Circuit Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	14,700	22,618	18,550	23,618	29,816
US Companies	7,700	11,681	8,999	10,493	12,520
Advanced Micro Devices	505	937	615	828	985
Altera			4	12	21
AMCC	7	18	21	19	27
Analog Devices	145	218	225	243	265
AT&T				730	595
Burr-Brown		71	78	113	120
Catalyst					2
Cherry Semiconductor	13	16	14	22	29
Chips & Technologies				41	112
Commodore					
Cypress Semiconductor Corp.		4	18	50	76
Exar		38	32	41	44
EG&G		1	4		
Fairchild	384	595	451		
GE Solid State	3	4	6	350	382
General Instrument	113	91	70	69	78
Gould AMI Semiconductors	162	164	140	155	155
GTE Microcircuits	19	24	27	22	24
Harris	171	256	247	267	268
Holt		10	12	12	14
Honeywell		37	57	102	121
Hughes	25	32	36	39	44
IBM		10	12	12	13
IBM	16	28	25	32	42
ITT	90	125	140	168	197
Integrated Device Technology	10	33	51	72	98
Intel	775	1,201	1,020	991	1,491
Interdesign	25	34	31		
Intersil	78	78	71		
Lattice			3	10	13
Linear Technology	4	16	19	29	43
Litronix					
LSI Logic	32	84	140	197	263
Monolithic Memories	131	200	172		
Micro Power Systems	19	26	28	32	23
Micron Technology	24	117	36	63	115
Mitel		35	29	33	39
Mobtek	315	467	110		
Motorola	1,150	1,693	1,281	1,403	1,754
NCR	75	80	75	94	104
National Semiconductor	864	1,153	882	1,363	1,431
Precision Monolithics	50	70	64	73	79
RCA	211	303	225		
Raytheon	45	73	51	69	73
Rockwell	57	57	44	124	171
Saratoga Semiconductor					4
SECO	9	53	33	32	50
Solid State Scientific	33	40			
Sierra Semiconductor				8	24
Siliconix	40	54	63	67	70
Silicon Systems	28	64	51	75	88
Solitron	4	6	8	12	13
Sprague	40	57	102	108	106
Standard Microsystems	42	70	54	54	41
Supertek	6	10	8	9	10
Synertek	96	60			
Texas Instruments	1,535	2,375	1,653	1,689	2,024
Teledyne	19	20	16	25	33
TRW	43	54	43	24	25
Unitrode	4	9	8	16	25
Universal		7	9	10	7

(Continued)

Final Market Share Estimates

Table 2 (Continued)

Total Integrated Circuit Market Share Estimates (Millions of Dollars)

			1	4	8
VLSI					
Vitellic					
VLSI Technology	36	69	78	112	172
VTC			24	37	43
Waferscale				8	20
Weitek				17	20
Western Digital	47	68	56	53	70
Xicor	16	39	32	41	63
Xilinx				4	11
Zilog	70	88	59	64	75
Zynco	10	22	17	18	26
Others	104	117	117	126	181
Japanese Companies	5,411	8,500	7,409	10,510	13,860
Fujitsu	606	1,098	940	1,247	1,660
Fuji Electric	25	31	20	35	42
Hitachi	912	1,569	1,236	1,639	1,941
Matsushita	367	592	595	795	1,019
Mitsubishi	384	766	504	873	1,241
NEC	1,093	1,838	1,603	2,144	2,795
New JRC				76	108
OKI	216	343	289	404	619
Ricoh				55	65
Rohm	58	111	104	186	248
Sancom	25	47	53	81	119
Sanyo	247	305	314	407	556
Seiko Epson		115	93	165	245
Sharp	164	221	201	236	367
Sony	103	122	155	281	363
Toshiba	613	1,035	1,004	1,616	2,167
Others	598	307	299	270	305
European Companies	1,470	2,273	1,915	2,269	2,871
ASEA-HAFO	7	13	18	22	26
Eurosil	15	20	21	32	25
Ferranti	68	85	78	92	100
Immos	58	146	85	80	91
Matra-Harris	13	41	42	44	60
Medi	12	16	20	21	27
Philips-Signetics	694	1,090	808	1,028	1,187
Pihar			4		
Plessey	58	75	89	96	103
Rifa	7	11	12	12	39
SGS Thomson	177	263	240	497	646
Siemens	178	230	205	210	354
STC	30	38	16	18	12
Telefunken Electronic	51	63	68	79	110
Thomson	99	174	197		
Others	3	8	12	38	91
Rest of World Companies	119	164	227	346	565
Erso	25	32	26	20	30
Gold Star		12	30	49	68
Hyundai				18	35
KDC	4	5	8	10	20
MIL					
Samsung	18	33	75	145	286
United Microelectronics	23	27	33	69	91
Others	49	55	55	35	35

Source: Dataquest
September 1988

Final Market Share Estimates

Table 3

Bipolar Digital Market Share Estimates by Technology (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	3,015	4,783	3,684	4,325	4,740
US Companies	1,933	3,078	2,319	2,515	2,616
Advanced Micro Devices	260	427	250	447	500
AMOC	7	18	21	19	27
Analog Devices					
AT&T				123	79
Cherry Semiconductor	3	4	3	3	2
Chips & Technologies				10	25
Fairchild	246	410	329		
Harris	44	55	43	46	32
Honeywell		37	50	68	57
Hughes					
ITT					
Intel	55	35	22	22	18
Interdesign		6	6		
Intersil	1				
LST Logic	3				
Monolithic Memories	131	200	170		
Motorola	238	456	379	393	429
National Semiconductor	210	290	194	511	521
NCA	6				
Raytheon	15	37	23	42	48
Solitron					
Sprague					
Supertex					
Texas Instruments	667	1,077	796	808	854
Teledyne	3	2	3	3	
TRW		4	4		
VTC			6	10	14
Others	24	20	20	10	10
Japanese Companies	600	936	782	1,230	1,475
Fujitsu	174	305	267	397	495
Fuji Electric	1	2	1	2	
Hitachi	144	223	195	321	395
Matsushita	13	22	21	28	26
Mitsubishi	68	123	75	134	125
NEC	115	134	129	176	247
New JRC				1	1
OKI	17	25	22	19	32
Rohm	10	15			
Sony	14	18	18	23	29
Sony	8				
Toshiba	21	37	33	129	125
Others	15	32	21		
European Companies	464	752	560	551	612
Ferranti	36	46	49	58	57
Matra-Harris		4	4		1
Phillips-Signetics	344	589	372	389	406
Piher			4		
Plessey	21	27	30	32	31
Rifa	6	9	9	5	12
SGS Thomson	10	20	26	21	20
Siemens	36	35	41	39	63
Telefunken Electronic					15
Thomson	10	21	24		
Others	1	1	1	7	7
Rest of World Companies	18	17	23	29	37
Erso	4				
Gold Star		1	7	14	22
Others	14	16	16	15	15

Source: Dataquest
September 1988

Final Market Share Estimates

Table 4

TTL Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	2,551	4,046	2,856	3,235	3,372
US Companies	1,701	2,685	1,969	2,139	2,126
Advanced Micro Devices	260	424	245	438	491
Analog Devices				100	62
AT&T				10	25
Chips & Technologies					
Fairchild	184	315	256		
Harris	44	55	43	29	16
Honeywell				23	10
Hughes					
ITT					
Intel	55	35	22	13	8
Intersil	1				
Monolithic Memories	131	200	170		
Motorola	150	283	237	246	245
National Semiconductor	205	283	190	450	381
RCA	6				
Raytheon	15	30	16	37	43
Sprague					
Supertex					
Texas Instruments	650	1,056	786	793	845
TRW		4	4		
Others					
Japanese Companies	454	713	438	646	768
Fujitsu		237	111	162	200
Hitachi		170	143	234	299
Matsushita		18	17	21	19
Mitsubishi		99	59	104	96
NEC		104	95	124	153
New JRC				1	1
OKI		20			
Sanyo		14			
Toshiba		30			
Others		21	13		
European Companies	378	631	428	422	443
Ferranti	3	3	3	4	
Matra-Harris		4	4		1
Philips-Signetics	320	551	337	363	380
Plessey					5
Rifa	3	5	5		7
SGS Thomson	10	20	26	19	19
Siemens	31	26	28	29	11
Telefunken Electronic					15
Thomson	10	21	24		
Others	1	1	1	7	5
Rest of World Companies	18	17	21	28	35
Erso	4				
Gold Star		1	5	13	20
Others	14	16	16	15	15

Source: Dataquest
September 1988

Final Market Share Estimates

Table 5

ECL Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	318	563	597	740	939
US Companies	165	322	293	325	381
Advanced Micro Devices		3	2	5	5
AMOC	7	18	21	19	27
AT&T				23	17
Cherry Semiconductor				3	2
Fairchild	54	90	69		
Honeywell		37	50	45	47
Intersil					
LSI Logic	3				
Motorola	96	160	134	144	179
National Semiconductor	5	7	4	61	75
Raytheon		7	7	5	5
Texas Instruments					
VTC			6	10	14
Others				10	10
Japanese Companies	111	176	233	359	473
Fujitsu		52	140	205	262
Hitachi		36	36	76	88
Matsushita		4	4	7	7
Mitsubishi		21	14	28	27
NEC		22	26	41	86
OKI		5	5	2	3
Rohtm		15			
Sanyo		4			
Toshiba		6			
Others		11	8		
European Companies	42	65	71	56	105
Philips-Signetics	22	37	34	22	25
Pihner			3		
Plessey	15	19	21	22	25
SGS Thomson				2	1
Siemens	5	9	13	10	52
Others					2

Source: Dataquest
September 1988

Final Market Share Estimates

Table 6

Other Bipolar Digital Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	146	174	231	350	409
US Companies	67	71	57	51	109
Advanced Micro Devices			3	4	4
Cherry Semiconductor	3	4	3		
Fairchild	8	5	4		
Harris				17	16
ITT					
Intel				9	10
Interdesign		6	6		
Motorola	12	13	8	3	5
National Semiconductor					65
Raytheon					
Solitron					
Sprague					
Supertek					
Texas Instruments	17	21	10	15	9
Teledyne	3	2	3	3	
Others	24	20	20		
Japanese Companies	35	47	111	225	234
Fujitsu		16	16	30	33
Fuji Electric		2	1	2	
Hitachi		17	15	11	8
Mitsubishi		3	2	2	2
NEC		8	8	11	8
OKI			17	17	29
Sanyo			18	23	29
Toshiba		1	33	129	125
European Companies	44	56	61	73	64
Ferranti	33	43	46	54	57
Philips-Signetics	2	1	1	4	1
Piher			1		
Plessey	6	8	9	10	1
Rifa	3	4	4	5	5
Siemens					
Rest of World Companies			2	1	2
Gold Star			2	1	2
Others					

Source: Dataquest
September 1988

Final Market Share Estimates

Table 7

Bipolar Digital Memory Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	585	774	589	606	619
US Companies	322	415	309	279	246
Advanced Micro Devices	81	130	96	122	120
AT&T				1	1
Fairchild	45	45	36		
Harris	36	44	33	23	8
Intel	15	5			
Intersil	1				
Monolithic Memories	42	61	52		
Motorola	15	18	16	11	10
National Semiconductor	30	35	12	64	45
Raytheon	7	7	20	10	12
Supertex					
Texas Instruments	50	70	44	48	50
Others					
Japanese Companies	165	218	176	258	306
Fujitsu	90	136	95	145	178
Hitachi	52	59	55	81	95
Matsushita					
NEC	22	23	26	32	33
Others	1				
European Companies	98	141	104	69	67
Matra-Harris		4	4		1
Phillips-Signetics	89	121	80	61	61
Siemens	3	5	7	7	4
Thomson	6	11	13		
Others				1	1

Source: Dataquest
September 1988

Final Market Share Estimates

Table 8

Bipolar Digital Logic Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	2,430	4,009	3,095	3,719	4,121
US Companies	1,611	2,663	2,010	2,236	2,370
Advanced Micro Devices	179	297	154	325	380
AMCC	7	18	21	19	27
AT&T				122	78
Cherry Semiconductor	3	4	3	3	2
Chips & Technologies				10	25
Fairchild	201	365	293		
Harris	8	11	10	23	24
Honeywell		37	30	68	57
ITT					
Intel	40	30	22	22	18
Interdesign		6	6		
Intersil					
LSI Logic	3				
Monolithic Memories	89	139	118		
Motorola	243	438	363	382	419
National Semiconductor	180	255	182	447	476
RCA	6				
Raytheon	8	30	3	32	36
Solitron					
Supertek					
Texas Instruments	617	1,007	752	760	804
Teledyne	3	2	3	3	
TRW		4	4		
VTC			6	10	14
Others	24	20	20	10	10
Japanese Companies	435	718	606	972	1,169
Fujitsu	84	169	172	252	317
Fuji Electric	1	2	1	2	
Hitachi	92	164	140	240	300
Matsushita	13	22	21	28	26
Mitsubishi	68	123	75	134	125
NEC	93	111	103	144	214
New JRC				1	1
OKI	17	25	22	19	32
Rohm	10	15			
Sanyo	14	18	18	23	29
Sony	8				
Toshiba	21	37	33	129	125
Others	14	32	21		
European Companies	366	611	456	482	545
Ferranti	36	46	49	58	57
Philips-Signetics	255	468	292	328	345
Pitner			4		
Plessey	21	27	30	32	31
Rifa	6	9	9	5	12
SGS Thomson	10	20	26	21	20
Siemens	33	30	34	32	59
Telefunken Electronic					15
Thomson	4	10	11		
Others	1	1	1	6	6
Rest of World Companies	18	17	23	29	37
Ercs	4				
Gold Star		1	7	14	22
Others	14	16	16	15	15

Source: Dataquest
September 1988

Final Market Share Estimates

Table 9

MOS Market Share Estimates by Technology (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	7,951	12,947	10,100	12,815	17,325
US Companies	4,088	6,201	4,479	5,142	6,904
Advanced Micro Devices	224	480	304	317	413
Altera			4	12	21
AT&T				325	300
Catalyst					2
Chips & Technologies				31	87
Commodore					
Cypress Semiconductor Corp.		4	18	50	76
Exar		2	2	5	6
EXEL		1	4		
Fairchild	48	45	22		
GE Solid State	3	4	6	223	251
General Instrument	100	71	51	54	61
Gould MHI Semiconductors	162	164	140	155	155
GTE Microcircuits	16	5	9	3	4
Harris	63	105	111	108	116
Holt		3	7	12	14
Honeywell			7	34	64
Hughes	25	32	36	39	44
IMI		10	12	7	8
IMP	16	28	25	32	42
ITT	56	80	90	107	146
Integrated Device Technology	10	33	51	72	98
Intel	720	1,166	998	969	1,473
Interdesign	7	8	7		
Intersil	23	23	21		
Lattice			3	10	13
Litronix					
LSI Logic	29	84	140	197	263
Monolithic Memories			2		
Micro Power Systems	2	16	17		
Micron Technology	24	117	36	63	115
Mobtek	315	467	110		
Motorola	697	967	668	728	986
NCR	75	80	75	94	104
National Semiconductor	280	430	318	355	415
RCA	133	210	160		
Raytheon					1
Rockwell	57	57	44	65	97
Saratoga Semiconductor					4
SEEQ	9	53	33	32	50
Solid State Scientific	33	40			
Sierra Semiconductor				5	16
Siliconix	4	4	3	5	7
Solitron	2	2			
Sprague			28	23	17
Standard Microsystems	42	70	54	54	41
Supertex	6	10	8	9	10
Synartek	96	60			
Texas Instruments	572	889	522	529	784
Teledyne	2	16	2	2	5
TRW				6	7
Universal		7	9	10	7
VISIC			1		
Vitellic				4	8
VLSI Technology	36	69	78	112	172
VTC			7	11	17

(Continued)

Final Market Share Estimates

Table 9 (Continued)

MOS Market Share Estimates by Technology (Millions of Dollars)

Waferscale				8	20
Weitek				17	20
Western Digital	47	68	56	53	70
Xicor	16	39	32	41	60
Xilinx				4	11
Zilog	70	88	59	64	75
Zymos	10	22	17	18	26
Others	58	72	72	68	102
Japanese Companies	3,252	5,721	4,695	6,471	8,739
Fujitsu	406	753	631	775	1,014
Fuji Electric	4	5	6	7	14
Hitachi	638	1,167	852	1,053	1,236
Matsushita	160	283	269	388	593
Mitsubishi	247	541	323	544	811
NEC	786	1,414	1,174	1,608	2,006
New JRC				3	12
OKI	197	315	264	371	566
Ricoh				55	65
Rohm	2	5	5	8	13
Sanyo	50	67	68	88	150
Seiko Epson		115	93	147	231
Sharp	146	197	173	193	312
Sony	45	38	59	114	147
Toshiba	458	770	736	1,114	1,566
Others	113	51	43	3	3
European Companies	528	912	778	964	1,263
ASEA-HAFO	7	13	18	22	26
Burolil	15	20	21	32	25
Ferranti	11	12	6	10	12
Imms	58	146	85	80	91
Matra-Harris	13	33	36	42	58
Medi	12	16	20	21	27
Philips-Signetics	155	266	228	312	342
Plessey	19	26	35	37	39
Rifa	1	2	3	4	11
SGS Thomson	68	102	88	249	344
Siemens	80	126	92	89	171
STC	30	38	16	18	12
Telefunken Electronic	8	13	13	18	23
Thomson	50	93	107		
Others	1	6	10	30	82
Rest of World Companies	83	113	148	238	419
Ersa	21	30	25	19	29
Gold Star		1	5	5	20
Hyundai				18	35
MIL					
Samsung	13	25	55	117	234
United Microelectronics	23	27	33	69	91
Others	26	30	30	10	10

Source: Dataquest
September 1988

Final Market Share Estimates

Table 10

NMOS Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	5,461	8,824	6,073	6,914	8,407
US Companies	3,010	4,554	2,827	2,692	3,228
Advanced Micro Devices	214	470	304	308	388
AT&T				70	40
Commodore					
EXEL		1	2		
Fairchild	30	26	8		
GE Solid State	3	4	6		
General Instrument	95	64	42	43	48
Gould AMI Semiconductors	118	77	67	62	49
GTE Microcircuits	1				
Hughes				2	2
IMP	9	11	2	3	3
ITT	15	36	43	46	77
Intel	720	1,156	976	909	1,122
Intersil	5	3			
Micron Technology	24	117	36	63	115
Mostek	281	416	60		
Motorola	440	635	378	280	346
NCR	60	60	45	48	48
National Semiconductor	160	227	110	149	150
Rockwell	41	41	27	39	68
SEEC	9	50	28	27	35
Solid State Scientific	1	1			
Sprague				14	9
Standard Microsystems	37	64	50	48	36
Supertex					
Synertek	96	60			
Texas Instruments	461	752	428	426	524
VLSI Technology	34	60	51	37	35
Western Digital	47	68	45		
Xicor	16	39	32	40	57
Zilog	70	88	59	58	61
Others	23	28	28	20	15
Japanese Companies	2,077	3,593	2,732	3,623	4,397
Fujitsu	331	615	500	602	752
Fuji Electric	3				
Hitachi	383	708	493	457	460
Matsushita	103	184	170	239	310
Mitsubishi	186	463	256	436	611
NEC	636	1,125	908	1,190	1,325
New JRC				2	7
OKI	78	141	110	137	199
Ricoh				34	39
Rohm	1	3			
Sanyo	28	26	26	31	37
Sharp	36	46	40	60	90
Sony	36	19	19	29	32
Toshiba	165	230	181	404	533
Others	91	33	29	2	2

(Continued)

Final Market Share Estimates

Table 10 (Continued)

NMOS Market Share Estimates (Millions of Dollars)

European Companies	361	660	478	507	580
Ferranti	3	3			
Immos	58	146	66	33	11
Matra-Harris	1	11	7	5	2
Medl					
Philips-Signetics	103	187	138	179	178
Plessey	13	19	22	11	9
Rifa	1	2	2	2	
SGS Thomson	44	64	56	148	187
Siemens	63	114	87	84	145
STC	29	35	12	13	5
Telefunken Electronic	8	13	13	18	23
Thomson	37	64	72		
Others	1	2	3	14	20
Rest of World Companies	13	17	36	92	202
Exco	5	5	2	1	2
Gold Star			1	1	1
Hyundai				1	5
Samsung		3	21	65	165
United Microelectronics	8	9	12	24	29

Source: Dataquest
September 1988

Final Market Share Estimates

Table 11

PMOS Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	319	278	143	73	64
US Companies	183	183	88	48	42
Advanced Micro Devices	10	10			
Fairchild	4	5	3		
General Instrument		3	2		
Gould AMI Semiconductors	15	15	3		
GTE Microcircuits	1				
Hughes	1	1			
ITT	18	12	8	6	4
Mostek					
National Semiconductor	10	8	3		
Rockwell	16	15	10	16	9
Solid State Scientific	1	1			
Standard Microsystems	5	5	2	2	
Texas Instruments	91	97	46	24	29
Western Digital					
Others	11	11	11		
Japanese Companies	111	74	43	20	17
Fujitsu	7	7	4		
Hitachi	4	8	3	3	2
Matsushita	12	5	4	4	3
Mitsubishi	12	5	2	2	2
NEC	25	32	22	8	7
OKI	5	1			
Sanyo	2	1			
Sharp	18	11	5	3	3
Toshiba	21	2	1		
Others	5	2	2		
European Companies	22	18	9	3	2
Medl	3	3	2		
Philips-Signetics					
Plessey	2	3	2	1	1
SGS Thomson					
Siemens	17	12	5	2	1
Telefunken Electronic					
Rest of World Companies	3	3	3	2	3
Gold Star				2	3
Others	3	3	3		

Source: Dataquest
September 1988

Final Market Share Estimates

Table 12

CMOS Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	2,171	3,845	3,884	5,828	8,854
US Companies	895	1,464	1,564	2,402	3,634
Advanced Micro Devices				9	25
Altera			4	12	21
AT&T				255	260
Catalyst					2
Chips & Technologies				31	87
Comodore					
Cypress Semiconductor Corp.		4	18	30	76
Exar		2	2	5	6
EXEL			2		
Fairchild	14	14	11		
GE Solid State				223	251
General Instrument	5	4	7	11	13
Gould AMI Semiconductors	29	72	70	93	106
GTE Microcircuits	14	5	9	3	4
Harris	63	105	111	108	116
Holt		3	7	12	14
Honeywell			7	34	64
Hughes	24	31	36	37	42
IMI		10	12	7	8
IMP	7	17	23	29	39
ITT	23	32	39	55	65
Integrated Device Technology	10	33	51	72	98
Intel		10	22	60	351
Interdesign	7	8	7		
Intersil	18	20	21		
Lattice			3	10	13
LSI Logic	29	84	140	197	263
Monolithic Memories			2		
Micro Power Systems	2	16	17		
Motek	34	51	50		
Motorola	257	332	290	448	640
NCR	15	20	30	46	56
National Semiconductor	110	195	205	206	265
RCA	133	210	160		
Raytheon					1
Rockwell		1	7	10	20
Saratoga Semiconductor					4
SEEQ		3	5	5	15
Solid State Scientific	31	38			
Sierra Semiconductor				5	16
Siliconix	4	4	3	5	7
Solitron	2	2			
Sprague			28	9	8
Standard Microsystems		1	2	4	5
Supertex	6	10	8	9	10
Texas Instruments	20	40	48	79	231
Telebyte	2	16	2	2	5
TRW				6	7
Universal		7	9	10	7
VLSIC			1		
Vitellic				4	8
VLSI Technology	2	9	27	75	137
VTC			7	11	17

(Continued)

Final Market Share Estimates

Table 12 (Continued)

CMOS Market Share Estimates (Millions of Dollars)

Waferscale				8	20
Weitek				17	20
Western Digital			11	53	70
Xicor				1	3
Xilinx				4	11
Zilog				6	14
Zynex	10	22	17	18	26
Others	24	33	33	48	87
Japanese Companies	1,064	2,054	1,920	2,828	4,325
Fujitsu	68	131	126	173	262
Fuji Electric	1	5	6	7	14
Hitachi	251	451	356	593	774
Matsushita	43	94	95	145	280
Mitsubishi	49	73	66	106	198
NEC	125	257	244	410	674
New JRC				1	5
OKI	114	173	154	234	367
Ricoh				21	26
Rohm	1	2	5	8	13
Sanyo	20	40	42	57	113
Seiko Epson		115	93	147	231
Sharp	92	140	128	130	219
Sony	9	19	40	85	115
Toshiba	272	538	554	710	1,033
Others	17	16	12	1	1
European Companies	145	234	291	454	681
ASEA-HAFO	7	13	18	22	26
Burroil	15	20	21	32	25
Ferranti	8	9	6	10	12
Imrope			19	47	80
Matra-Harris	12	22	29	37	56
Medl	9	13	18	21	27
Philips-Signetics	52	79	90	133	164
Plessey	4	4	11	25	29
Rifa			1	2	11
SGS Thomson	24	38	32	101	157
Siemens				3	25
STC	1	3	4	5	7
Thomson	13	29	35		
Others		4	7	16	62
Rest of World Companies	67	93	109	144	214
Erso	16	25	23	18	27
Gold Star		1	4	2	16
Hyundai				17	30
Samsung	13	22	34	52	69
United Microelectronics	15	18	21	45	62
Others	23	27	27	10	10

Source: Dataquest
September 1988

Final Market Share Estimates

Table 13

MOS Memory Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	3,719	6,225	3,816	4,511	6,162
US Companies	1,795	2,605	1,364	1,356	1,730
Advanced Micro Devices	161	258	181	128	155
AT&T				55	25
Catalyst					2
Commodore					
Cypress Semiconductor Corp.		4	18	42	57
Exar				2	2
EXEL		1	3		
Fairchild	5	4	4		
GE Solid State				24	18
General Instrument	54	43	26	31	35
Gould AMI Semiconductors	42	29	12	11	11
GTE Microcircuits	5	2			
Harris	21	35	30	40	39
Honeywell				7	
Hughes	3	4	4	2	2
IBM	2				
ITT	1				
Integrated Device Technology	10	30	49	66	85
Intel	325	380	288	299	383
Intersil	5	3	2		
Lattice			3	8	4
Micro Power Systems					
Micron Technology	24	117	36	63	115
Mostek	215	350	60		
Motorola	233	314	100	51	86
NCR	53	22	10	16	10
National Semiconductor	95	110	50	57	80
RCA	28	40	28		
Rockwell	16	9	2	1	
SEEC	9	50	28	27	42
Solid State Scientific	10	6			
Sierra Semiconductor					1
Sprague			2	7	
Supertek	1	1	1		
Synartek	47	30			
Texas Instruments	371	670	349	325	445
VLSI			1		
Vitalic				4	8
VLSI Technology	20	24	17	24	23
Waferscale				5	12
Xicor	16	39	32	41	60
Zilog					
Others	23	30	30	20	30

(Continued)

Final Market Share Estimates

Table 13 (Continued)

MOS Memory Market Share Estimates (Millions of Dollars)

Japanese Companies	1,720	3,272	2,193	2,878	3,977
Fujitsu	278	527	412	485	634
Hitachi	500	971	662	719	769
Matsushita	29	80	58	71	92
Mitsubishi	158	370	147	289	491
NEC	343	713	470	586	838
OKI	101	149	91	90	193
Ricoh				16	18
Sanyo		1	1	5	27
Seiko Epson		23	13	44	77
Sharp	34	32	28	55	130
Sony	4	4	12	39	56
Toshiba	221	396	297	479	652
Others	52	6	3		
European Companies	192	329	221	200	244
Eurosil	2				
Immos	58	146	83	69	43
Matra-Harris	10	15	15	16	22
Medi				4	5
Philips-Signetics	27	32	35	14	18
SGS Thomson	15	22	24	52	95
Siemens	29	45	26	31	52
STC	26	31	8	10	6
Thomson	25	38	30		
Others				4	3
Rest of World Companies	12	19	38	77	211
Ersa	4	7	5	3	5
Gold Star			1		
Hyundai				4	30
Samsung		3	21	65	170
United Microelectronics	5	6	8	5	6
Others	3	3	3		

Source: Dataquest
September 1988

Final Market Share Estimates

Table 14

MOS Micro Devices Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	1,979	3,229	2,745	3,489	4,898
US Companies	1,162	1,873	1,543	1,707	2,574
Advanced Micro Devices	58	203	86	117	177
AT&T				45	50
Chips & Technologies				31	87
Commodore					
EXEL			1		
Fairchild	24	17	10		
GE Solid State				27	28
General Instrument	9	7	8	9	10
Gould AMI Semiconductors	9	8	7	6	5
GTE Microcircuits		1	5		1
Harris	26	52	58	42	43
Hughes	2	3	3	2	2
ITT	8	10	11	13	21
Integrated Device Technology			1	2	5
Intel	358	743	670	628	1,037
Intersil	6	5	19		
Mostek	42	55	20		
Motorola	210	291	272	342	519
NCR	6	10	9	10	10
National Semiconductor	75	115	106	122	140
RCA	27	34	28		
Rockwell	25	32	26	40	46
Sierra Semiconductor					1
Standard Microsystems	30	50	40	43	36
Synartek	29	15			
Texas Instruments	135	117	88	92	169
VLSI Technology					18
Waitek				17	20
Western Digital	8	12	11	50	63
Zilog	70	88	59	64	75
Zytec					4
Others	5	5	5	5	7
Japanese Companies	720	1,154	1,030	1,547	1,985
Fujitsu	85	121	106	120	146
Hitachi	85	120	110	228	297
Matsushita	88	119	111	167	199
Mitsubishi	54	156	122	205	267
NEC	237	411	375	478	566
OKI	19	46	45	68	101
Ricoh				11	14
Rohm	1	2	1	2	3
Sanyo	23	35	36	44	53
Seiko Epson		1			
Sharp	45	62	46	26	34
Sony	25			17	21
Toshiba	45	70	69	180	283
Others	13	11	9	1	1

(Continued)

Final Market Share Estimates

Table 14 (Continued)

MOS Micro Devices Market Share Estimates (Millions of Dollars)

European Companies	90	191	156	215	308
Eurosil	2	2	2	4	3
Ferranti	2	1			
Imos			2	11	48
Macra-Harris	1	11	12	18	17
Medl					1
Philips-Signetics	45	104	64	85	100
SGS Thomson	24	31	20	80	95
Siemens	6	19	16	17	44
Thomson	10	23	40		
Rest of World Companies	7	11	16	20	31
Erso			1	1	2
Gold Star		1	2	1	1
United Microelectronics	1	4	7	18	28
Others	6	6	6		

Source: Dataquest
September 1988

Final Market Share Estimates

Table 15

MOS Logic Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	2,253	3,493	3,540	4,815	6,265
US Companies	1,131	1,723	1,572	2,079	2,600
Advanced Micro Devices	5	19	37	72	81
Altera			4	12	21
AT&T				225	225
Commodore					
Cypress Semiconductor Corp.				8	19
Exar		2	2	3	4
Fairchild	19	24	8		
GE Solid State	3	4	6	172	205
General Instrument	37	21	17	14	16
Gould AMI Semiconductors	111	127	121	138	139
GE Microcircuits	11	2	4	3	3
Harris	16	18	23	26	34
Holt		3	7	12	14
Honeywell			7	27	64
Hughes	20	25	29	35	40
IM		10	12	7	8
IMP	14	28	25	32	42
ITT	47	70	79	94	125
Integrated Device Technology		3	1	4	8
Intel	37	43	40	42	53
Interdesign	7	8	7		
Intersil	12	15			
Lattice				2	9
LSI Logic	29	84	140	197	263
Monolithic Memories			2		
Micro Power Systems	2	16	17		
Mostek	58	62	30		
Motorola	254	362	296	335	381
NCR	16	48	56	68	84
National Semiconductor	110	205	162	176	195
RCA	78	136	106		
Raytheon					1
Rockwell	16	16	16	24	51
Saratoga Semiconductor					4
SEB		3	5	5	8
Solid State Scientific	23	34			
Sierra Semiconductor				5	14
Siliconix	4	4	3	5	7
Solitron	2	2			
Sprague			26	16	17
Standard Microsystems	12	20	14	11	5
Supertex	5	9	7	9	10
Synertek	20	15			
Texas Instruments	66	102	85	112	170
Teledyne	2	16	2	2	5
TRW				6	7
Universal		7	9	10	7
VLSI Technology	16	45	61	88	131
VTC			7	11	17
Waferscale				3	8
Western Digital	39	56	45	3	7
Xilinx				4	11
Zymos	10	22	17	18	22
Others	30	37	37	43	65

(Continued)

Final Market Share Estimates

Table 15 (Continued)

MOS Logic Market Share Estimates (Millions of Dollars)

Japanese Companies	812	1,295	1,473	2,046	2,777
Fujitsu	43	105	113	170	234
Fuji Electric	4	5	6	7	14
Hitachi	53	76	81	106	170
Matsushita	43	84	100	150	302
Mitsubishi	35	15	55	50	53
NEC	206	290	329	544	602
New JRC				3	12
OKI	77	120	128	213	272
Ricoh				28	33
Rohm	1	3	4	6	10
Sanyo	27	31	31	39	70
Seiko Epson		91	80	103	154
Sharp	67	103	99	112	148
Sony	16	34	47	58	70
Toshiba	192	304	370	455	631
Others	48	34	31	2	2
European Companies	246	392	401	549	711
ASEA-HAFO	7	13	18	22	26
Buconil	11	18	19	28	22
Ferranti	9	11	6	10	12
Matra-Harris	2	7	9	8	19
Medl	12	16	20	17	21
Philips-Signetics	83	130	129	213	224
Plessey	19	26	35	37	39
Rifa	1	2	3	4	11
SGS Thomson	29	49	44	117	154
Siemens	45	62	50	41	75
STC	4	7	8	8	6
Telefunken Electronic	8	13	13	18	23
Thomson	15	32	37		
Others	1	6	10	26	79
Rest of World Companies	64	83	94	141	177
Erso	17	23	19	15	22
Gold Star			2	4	19
Hyundai				14	5
Samsung	13	22	34	52	64
United Microelectronics	17	17	18	46	57
Others	17	21	21	10	10

Source: Dataquest
September 1988

Final Market Share Estimates

Table 16

Linear Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	3,734	4,888	4,766	6,478	7,751
US Companies	1,679	2,402	2,201	2,836	3,000
Advanced Micro Devices	21	30	61	64	72
Analog Devices	145	218	226	243	265
AT&T				282	216
Burr-Brown		71	78	113	120
Cherry Semiconductor	10	12	11	19	27
Exar		36	30	36	38
Fairchild	90	140	100		
GE Solid State				127	131
General Instrument	13	20	19	15	17
GTE Microcircuits	3	19	18	19	20
Harris	64	96	93	113	120
Holt		7	5		
IMT				5	5
ITT	34	45	50	61	51
Interdesign	18	20	18		
Intersil	54	55	50		
Linear Technology	4	16	19	29	43
Micro Power Systems	17	10	11	32	23
Mitel		35	29	33	39
Motorola	195	270	234	282	339
National Semiconductor	374	433	370	497	495
Precision Monolithics	50	70	64	73	79
RCA	72	93	65		
Raytheon	30	36	28	27	24
Rockwell				59	74
Sierra Semiconductor				3	8
Siliconix	36	50	60	62	63
Silicon Systems	28	64	51	75	88
Solitron	2	4	8	12	13
Sprague	40	57	74	85	89
Texas Instruments	296	409	335	352	386
Teledyne	14	2	11	20	28
TRW	43	50	39	18	18
Unitrode	4	9	8	16	25
VTC			11	16	12
Xicor					3
Others	22	25	25	48	69
Japanese Companies	1,559	1,843	1,932	2,809	3,646
Fujitsu	26	40	42	75	151
Fuji Electric	20	24	13	26	28
Hitachi	130	179	189	265	310
Matsushita	194	287	305	379	400
Mitsubishi	69	102	106	195	305
NEC	192	290	300	360	542
New JRC				72	95
OCI	2	3	3	14	21
Rohm	46	91	99	178	235
Sanken	25	47	53	81	119
Sanyo	183	220	228	296	377
Seiko Epson				18	14
Sharp	18	24	28	43	55
Sony	50	84	96	167	216
Toshiba	134	228	235	373	476
Others	470	224	235	267	302

(Continued)

Final Market Share Estimates

Table 16 (Continued)

Linear Market Share Estimates (Millions of Dollars)

European Companies	478	609	577	754	996
Ferranti	21	27	23	24	31
Matra-Harris		4	2	2	1
Phillips-Signetics	195	235	208	327	439
Plessey	18	22	24	27	33
Rifa				3	16
SGS Thomson	99	141	126	227	282
Siemens	62	69	72	82	120
Telefunken Electronic	43	50	55	61	72
Thomson	39	60	66		
Others	1	1	1	1	2
Rest of World Companies	18	34	56	79	109
Erso		2	1	1	1
Gold Star		10	18	30	26
KEC	4	5	8	10	20
Samsung	5	8	20	28	52
Others	9	9	9	10	10

Source: Dataquest
September 1988

Final Market Share Estimates

Table 17

Total Discrete Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	3,865	4,986	4,579	5,730	6,580
US Companies	1,493	1,822	1,647	1,943	2,046
Acristan	18	21	18	13	15
AT&T				247	200
Fairchild	64	66	39		
GE Solid State	94	104	92	139	150
General Instrument	85	130	100	115	132
Hewlett-Packard	30	40	40	52	57
ITT	95	125	130	144	160
International Rectifier	81	115	128	125	151
Intersil	2	11	8		
Motorola	482	607	532	604	652
National Semiconductor	40	45	37	64	75
Powerex				94	106
RCA	74	88	76		
Raytheon	20	22	28	15	12
Solid State Scientific					
Siliconix	30	43	47	45	45
Solitron	29	31	30	30	34
Sprague	15	27	13	14	18
Supertex	4	3	5	8	9
Texas Instruments	48	59	56	58	64
Teledyne	3	3			
TRW	34	29	36	43	49
Unitrode	77	97	81	66	46
Varo	27	27	22	17	21
Westinghouse	58	52	52		
Others	83	77	77	50	50
Japanese Companies	1,678	2,330	2,100	2,745	3,307
Fujitsu	32	40	37	53	70
Fuji Electric	90	132	126	163	206
Hitachi	331	430	393	476	544
Matsushita	188	247	227	266	316
Mitsubishi	119	185	140	221	227
NEC	293	379	351	426	518
New JRC				7	21
OKI	3	4	4	6	7
Rohm	74	112	110	171	200
Sanken	67	109	97	133	162
Sanyo	58	105	103	159	210
Sony	16	34	42	62	72
Toshiba	272	418	368	556	703
Others	135	135	102	46	51

(Continued)

Final Market Share Estimates

Table 17 (Continued)

Total Discrete Market Share Estimates (Millions of Dollars)

European Companies	642	764	767	968	1,125
ASEA-HAFO	4	5	5	36	69
Brown-Boveri	20	25	29		
Ferranti	17	20	20	18	22
Medi	13	15	15	18	20
Philips-Signetics	204	217	232	298	390
Piher	5	6	10	7	
Sankor	36	40	48	72	79
SGS Thomson	53	72	60	199	213
Siemens	114	150	140	215	218
STC	4	2	1		
Tag	17	20	18	18	21
Telefunken Electronic	53	60	61	82	86
Thomson	96	127	123		
Others	6	5	5	5	7
Rest of World Companies	52	70	65	74	102
Gold Star		3	3	1	1
KEC	20	30	32	38	55
Samsung	22	27	20	25	36
Others	10	10	10	10	10

Source: Dataquest
September 1988

Final Market Share Estimates

Table 18

Transistor Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	1,946	2,465	2,269	2,802	3,364
US Companies	734	876	809	895	963
Acrlan	18	21	18	13	15
AT&T				32	27
Fairchild	24	22	12		
GE Solid State	32	33	27	102	108
General Instrument					
Hewlett-Packard	10	11	14	18	18
ITT	26	36	38	53	57
International Rectifier	20	34	43	45	51
Intersil	2	11	8		
Motorola	308	374	321	361	390
National Semiconductor	40	45	37	33	40
Powerex				5	11
RCA	59	70	62		
Raytheon	20	16	23	15	12
Solid State Scientific					
Siliconix	30	43	47	45	45
Solitron	20	21	20	25	29
Sprague	13	13	13	12	15
Supertex	4	3	5	8	9
Texas Instruments	45	57	54	58	64
Teledyne	3	3			
TRW	34	28	36	43	49
Unitrode	15	15	11	7	3
Westinghouse	1	5	5		
Others	10	15	15	20	20
Japanese Companies	854	1,153	1,035	1,410	1,798
Fujitsu	32	40	37	53	70
Fuji Electric	17	31	29	40	57
Hitachi	123	155	137	173	198
Matsushita	122	157	140	191	238
Mitsubishi	38	56	64	94	89
NEC	162	205	179	216	339
OKI	1				
Rohm	31	74	76	117	134
Sanken	30	44	38	43	48
Sanyo	51	84	84	109	151
Sony	14	8	7	16	19
Toshiba	133	200	173	325	418
Others	100	99	71	33	37

(Continued)

Final Market Share Estimates

Table 18 (Continued)

Transistor Market Share Estimates (Millions of Dollars)

European Companies	311	371	365	428	506
ASEA-HAPD					1
Brown-Boveri	6	7	8		
Ferranti	9	11	11	7	9
Mell	3	3	3	4	5
Phillips-Signetics	124	131	142	169	233
Pihar	3	4	7	5	
SGS Thomson	53	72	60	96	113
Siemens	52	68	64	115	117
Telefunken Electronic	20	22	23	30	26
Thomson	38	50	44		
Others	3	3	3	2	2
Rest of World Companies	47	65	60	69	97
Gold Star		3	3	1	1
- NEC	20	30	32	38	55
Samsung	22	27	20	25	36
Others	5	5	5	5	5

Source: Dataquest
September 1988

Final Market Share Estimates

Table 19

Diode Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	1,362	1,805	1,636	1,923	2,111
US Companies	583	731	644	686	717
AT&T				49	41
Fairchild	40	43	27		
GE Solid State	12	13	12	8	6
General Instrument	85	130	100	115	132
Hewlett-Packard	20	29	26	34	39
ITT	69	89	92	91	103
International Rectifier	41	58	62	54	64
Motorola	133	167	155	176	182
National Semiconductor				31	35
Powerex				33	30
RCA	3	3	3		
Solid State Scientific					
Solitron	9	10	10	5	5
Sprague	2	14		2	3
Texas Instruments					
Teledyne					
TRW		1			
Unitrode	56	74	62	51	36
Varo	27	27	22	17	21
Westinghouse	22	20	20		
Others	64	53	53	20	20
Japanese Companies	561	819	732	926	1,051
Fuji Electric	39	60	57	79	97
Hitachi	164	213	194	235	268
Matsushita	52	68	60	71	78
Mitsubishi	15	23	3	4	5
NEC	88	114	105	132	118
New JEC				1	2
Rohm	29	38	34	54	66
Sanien	31	65	59	90	114
Sanyo	7	21	19	25	28
Sony	2	26	35	46	53
Toshiba	106	163	142	179	211
Others	29	28	24	10	11
European Companies	213	250	255	306	338
ASEA-HAPD				11	15
Brown-Boveri	7	8	9		
Ferranti	8	9	9	11	13
Medl	4	4	4	5	5
Philips-Signetics	74	78	81	119	137
Fiber	1	1	2	1	
Semikron	12	14	18	28	30
SGS Thomson				36	44
Siemens	41	54	50	56	57
Telefunken Electronic	22	24	24	37	34
Thomson	43	57	57		
Others	1	1	1	2	3
Rest of World Companies	5	5	5	5	5
Others	5	5	5	5	5

Source: Dataquest
September 1988

Final Market Share Estimates

Table 20

Thyristor Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	314	368	394	439	500
US Companies	140	147	134	129	147
GE Solid State	32	35	32	8	8
ITT					
International Rectifier	20	23	23	19	27
Motorola	26	33	27	32	34
Powerex				56	63
RCA	12	15	11		
Raytheon					
Texas Instruments	2	1	1		
Unitrode	4	4	4	4	3
Westinghouse	35	27	27		
Others	9	9	9	10	10
Japanese Companies	89	118	152	169	168
Fuji Electric	2	3	3	2	3
Hitachi	17	22	22	25	29
Matsushita	4	5	4		
Mitsubishi	15	23	37	56	54
NEC	21	28	29	34	15
Sanken	6				
Toshiba	19	30	51	30	65
Others	5	7	6	2	2
European Companies	85	103	108	141	185
ASEA-BABCO	2	2	2	19	43
Brown-Boveri	5	7	9		
Medl	3	4	4	9	10
Phillips-Signetics	5	6	9	7	10
Pfizer	1	1	1	1	
Semikron	14	15	17	22	26
SGS Thomson				27	28
Siemens	18	24	22	27	27
Tag	16	18	18	18	21
Telefunken Electronic	10	12	12	11	19
Thomson	11	14	14		
Others					1

Source: Dataquest
September 1988

Final Market Share Estimates

Table 21

Other Discrete Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	243	348	279	566	605
US Companies	36	68	60	233	219
AT&T				166	132
Fairchild		1			
GE Solid State	38	23	21	21	28
ITT					
International Rectifier				7	9
Motorola	15	33	29	35	46
National Semiconductor					
RCA					
Raytheon		6	5		
Texas Instruments	1	1	1		
Univac	2	4	4	4	4
Others					
Japanese Companies	174	240	180	240	290
Fuji Electric	32	38	38	42	49
Hitachi	27	40	39	43	49
Matsushita	10	17	23	4	
Mitsubishi	51	83	35	67	79
NEC	22	32	38	44	46
New JRC				6	19
OKI	2	4	4	6	7
Rohm	14				
Sanyo				25	31
Toshiba	14	25	2	2	9
Others	1	1	1	1	1
European Companies	33	40	39	93	96
ASEA-HAR	2	3	3	6	10
Brown-Boveri	2	3	3		
Medi	3	4	4		
Philips-Signetics	1	2		3	10
Semikron	10	11	13	22	23
SGS Thomson				40	28
Siemens	3	4	4	17	17
STC	4	2	1		
Tag	1	2			
Telefunken Electronic	1	2	2	4	7
Thomson	4	6	8		
Others	2	1	1	1	1

Source: Dataquest
September 1988

Final Market Share Estimates

Table 22

Total Optoelectronic Market Share Estimates (Millions of Dollars)

	1983	1984	1985	1986	1987
Total Market	972	1,221	1,213	1,486	1,741
US Companies	372	445	405	373	414
AT&T				6	7
Fairchild	7	4	2		
GE Solid State	18	28	20	32	37
General Instrument	43	51	38	34	38
Hewlett-Packard	100	142	166	166	186
Honeywell	24	27	31	35	30
ITT					
International Rectifier	3				
Litronix					
Motorola	15	19	17	18	24
National Semiconductor	10	15	6		
RCA	12	11	9		
Texas Instruments	55	50	33	34	39
TRW	41	64	46	38	43
Others	44	34	37	10	10
Japanese Companies	494	626	636	905	1,094
Fujitsu	35	52	43	62	71
Fuji Electric	9	12	10	7	4
Hitachi	34	52	42	42	47
Matsushita	45	89	84	115	145
Mitsubishi	2	13	18	29	26
NEC	27	34	30	45	55
New JRC				9	12
OKI	10	15	14	18	25
Rohm	19	29	34	56	70
Sanien	11	6	6	10	13
Sanyo	46	45	40	49	85
Sharp	115	116	127	197	223
Sony	9	13	55	115	138
Toshiba	98	108	96	109	132
Others	34	42	37	42	48
European Companies	103	146	169	206	230
ASEA-HAPD	3	4	5	6	8
Philips-Signetics	19	18	25	35	26
Plessey	3	7	10	16	17
Rifa				2	2
Siemens	41	70	75	77	85
Telefunken Electronic	30	38	41	58	77
Thomson			4		
Others	7	9	9	12	15
Rest of World Companies	3	4	3	2	3
KEC	2	3	2	2	3
Others	1	1	1		

Source: Dataquest
September 1988

Final Market Share Estimates

NOTES TO MARKET SHARE TABLES

1. In 1986 and 1987, revenue for Advanced Micro Devices (AMD) and Monolithic Memories Inc. (MMI) is combined under AMD.
2. In 1986 and 1987, revenue for Fairchild and National Semiconductor is combined under National Semiconductor.
3. In 1986 and 1987, revenue for SGS and Thomson is combined under SGS.
4. In 1986 and 1987, revenue for Ferranti and Interdesign is combined under Ferranti.
5. Philips' and Signetics' revenue is consolidated for 1986 and 1987.
6. GE, RCA, and Intersil revenue is consolidated as GE Solid State for 1986 and 1987.

Final Market Share Estimates

Table 0

Yen per U.S. Dollar Exchange Rates

<u>Year</u>	<u>Exchange Rate</u>
1981	221
1982	248
1983	235
1984	237
1985	238
1986	167
1987	144
1988	130

Source: International Monetary Fund
Far Eastern Economic Review
Dataquest
July 1989

Final Market Share Estimates

Table 1

Worldwide Semiconductor Market Total Semiconductor Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	14,801	15,231	19,537	28,825	24,341	30,834	38,251	50,859
North American Companies	7,601	7,829	9,565	13,948	11,051	12,809	14,930	18,586
Acrian	2	17	18	21	18	13	15	21
Advanced Micro Devices	279	329	505	937	615	828	986	1,084
Altera					4	12	21	37
AMCC			7	18	21	19	27	28
Analog Devices	89	101	145	218	226	243	292	360
AT&T						983	802	859
BIT							2	6
Burr-Brown				71	78	113	120	144
California Micro Devices							24	28
Catalyst							2	5
Cherry Semiconductor	6	10	13	16	14	22	29	33
Chips & Technologies						41	112	160
Commodore	50	20						
Communications Transistor	10							
Cypress Semiconductor Corp.				4	18	50	76	135
Electronic Arrays								
Exar				38	32	41	44	47
EXEL				1	4			
Fairchild	462	410	455	665	492			
General Instrument	266	282	241	272	208	218	160	164
General Motors	13							
GE Solid State	121	102	115	136	118	521	520	555
Gould AMI Semiconductors	133	156	162	164	140	155	85	101
GTE Microcircuits	26	32	19	24	27	22	24	
Harris	165	156	171	256	247	267	275	329
Hewlett-Packard	92	102	130	182	206	218	243	270
Holt				10	12	12	9	9
Honeywell	18	20	24	64	88	137	187	182
Hughes	21	20	25	32	36	39	43	47
IMI				10	12	12	13	15
IMP			16	28	25	32	42	47
Integrated Device Technology		3	10	33	51	72	98	171
Intel	525	625	775	1,201	1,020	991	1,491	2,350
Interdesign			25	34	31			
International Rectifier	86	82	84	115	128	125	151	192
Intersil	75	71	80	89	79			
ITT	175	190	185	250	270	312	357	360
Lattice					3	10	13	22
Linear Technology			4	16	19	29	43	59
Litronix	22	23						
LSI Logic		6	32	84	140	197	262	375
Maxim							22	35
Microchip Technology							89	111
Micro Linear							12	24
Micron Technology		5	24	117	36	63	115	331
Micro Power Systems		14	19	26	28	32	23	26
Mitel				35	29	33	39	43
Monolithic Memories	68	70	131	200	172			
Monsanto								
Mosel							1	12
Mostek	210	220	315	467	110			
Motorola	1,190	1,219	1,647	2,319	1,830	2,025	2,434	3,035
National Semiconductor	742	708	914	1,213	925	1,427	1,506	1,650
NCR		28	75	80	75	94	116	132
Powerex						94	106	115

(Continued)

Final Market Share Estimates

Table 1 (Continued)

Worldwide Semiconductor Market Total Semiconductor Market Share Estimates (Millions of Dollars)

Precision Monolithics	34	40	50	70	64	73	78	85
Quality Technologies								40
Raytheon	51	52	65	95	79	84	89	99
RCA	293	273	297	402	310			
Rockwell	70	80	57	57	44	124	172	174
Saratoga Semiconductor							4	10
SEEQ			9	53	33	32	50	60
Sierra Semiconductor						8	24	47
Siliconix	60	60	70	97	110	112	115	131
Silicon General							25	35
Silicon Systems	13	16	28	64	51	75	88	125
Solid State Scientific	34	33	33	40				
Solitron	29	29	33	37	38	42	47	46
Spectronics								
Sprague	40	46	55	84	115	122	109	120
Standard Microsystems	19	26	42	70	54	54	41	41
Supertex	8	9	10	13	13	17	19	21
Synertek	72	88	96	60				
Teledyne	19	21	22	23	16	25	33	35
Texas Instruments	1,295	1,305	1,638	2,484	1,742	1,781	2,127	2,741
TRW	114	116	118	147	125	105	117	61
Unitrode	70	73	81	106	89	82	69	113
Universal				7	9	10	8	10
VISIC					1			
Vitellic						4	10	40
VLSI Technology		21	36	69	78	112	172	221
VQSI	31	28	27	27	22	17	21	21
VTC					24	37	44	46
Waferscale						8	20	35
Weitek						17	21	35
Western Digital	27	30	47	68	56	53	70	100
Westinghouse	59	53	58	52	52			
Xicor		3	16	39	32	41	63	90
Xilinx						4	11	27
Zilog	39	44	70	88	59	64	75	90
Zymos			10	22	17	18	26	27
Others	378	362	231	228	231	186	151	151
Japanese Companies	5,252	5,375	7,583	11,456	10,144	14,160	18,450	25,942
Fuji Electric	111	102	124	175	157	205	252	346
Fujitsu	375	465	673	1,190	1,019	1,362	1,801	2,607
Hitachi	807	879	1,277	2,051	1,671	2,157	2,618	3,506
Matsushita	487	427	600	928	906	1,176	1,457	1,883
Mitsubishi	321	340	505	964	662	1,123	1,492	2,312
NEC	993	1,079	1,413	2,251	1,984	2,615	3,368	4,543
New JRC						92	130	169
MMB Semiconductor							104	199
OKI	98	129	229	362	307	428	651	947
Ricoh						55	65	85
Rohm	113	100	151	252	247	413	518	721
Sanken	99	90	103	162	156	224	294	383
Sanyo	226	241	351	455	457	615	851	1,083
Seiko Epson				115	93	165	245	311
Sharp	158	192	279	337	328	433	590	1,036
Sony			128	169	252	458	571	950
Toshiba	774	715	983	1,561	1,468	2,281	3,029	4,395
Yamaha							116	151
Others	690	615	767	484	438	358	298	315

(Continued)

Final Market Share Estimates

Table 1 (Continued)

Worldwide Semiconductor Market Total Semiconductor Market Share Estimates (Millions of Dollars)

European Companies	1,903	1,929	2,215	3,183	2,851	3,443	4,200	4,917
ASEA-Brown Boveri	10	13	14	22	28	64	103	113
Austria Mikro Systeme							32	44
Brown-Boveri	24	24	20	25	29			
Ericsson							41	52
ES2							7	13
Eurosil	15	15	15	20	21	32	25	29
Fagor								27
Ferranti	48	82	85	105	98	110		
Immos	4	26	58	146	85	80	91	110
Matra-Harris	6	13	13	41	42	44	48	71
MEDL	19	21	25	31	35	39	47	51
Mietec							32	42
Philips	828	797	917	1,325	1,065	1,361	1,602	1,738
Piher	8	6	5	6	14	7		
Plessey	49	53	61	82	99	112	222	284
Rifa	7	7	7	11	12	14		
Semikron	29	34	36	40	48	72	79	91
SGS Thomson	160	175	230	335	300	696	859	1,087
Siemens	337	329	333	450	420	502	657	784
STC			34	40	17	18	12	22
TAG	21	21	17	20	18	18	21	23
Telefunken Electronic	138	143	134	161	170	219	273	289
Thomson	180	148	195	301	324			
Others	20	22	16	22	26	55	49	47
Rest of World Companies	45	98	174	238	295	422	671	1,414
Daewoo							1	7
Erso			25	32	26	20	30	
Gold Star				15	33	50	69	137
Hyundai						18	30	106
KEC		15	26	38	42	50	78	95
MIL								
Samsung		27	40	60	95	170	328	905
United Microelectronics		5	23	27	33	69	91	106
Others	45	51	60	66	66	45	44	58

Source: Dataquest
July 1989

Final Market Share Estimates

Table 2

Worldwide Semiconductor Market Total Integrated Circuit Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	10,023	10,857	14,700	22,618	18,550	23,618	29,887	41,068
North American Companies	5,601	5,973	7,700	11,681	8,999	10,493	12,496	15,990
Advanced Micro Devices	279	329	505	937	615	828	986	1,084
Altera					4	12	21	37
AMCC			7	18	21	19	27	28
Analog Devices	89	101	145	218	226	243	292	360
AT&T						730	595	688
BIT							2	6
Burr-Brown				71	78	113	120	144
California Micro Devices							24	28
Catalyst							2	5
Cherry Semiconductor	6	10	13	16	14	22	29	33
Chips & Technologies						41	112	160
Commodore	50	20						
Cypress Semiconductor Corp.				4	18	50	76	135
Electronic Arrays								
Exar				38	32	41	44	47
EXEL				1	4			
Fairchild	370	333	384	595	451			
General Instrument	152	172	113	91	70	69		
GE Solid State	3	2	3	4	6	350	358	389
Gould AMI Semiconductors	133	156	162	164	140	155	85	101
GTE Microcircuits	26	32	19	24	27	22	24	
Harris	165	156	171	256	247	267	275	329
Holt				10	12	12	9	9
Honeywell				37	57	102	147	142
Hughes	21	20	25	32	36	39	43	47
IMI				10	12	12	13	15
IMP			16	28	25	32	42	47
Integrated Device Technology		3	10	33	51	72	98	171
Intel	525	625	775	1,201	1,020	991	1,491	2,350
Interdesign			25	34	31			
Intersil	66	62	78	78	71			
ITT	78	90	90	125	140	168	197	214
Lattice					3	10	13	22
Linear Technology			4	16	19	29	43	59
Litronix								
LSI Logic		6	32	84	140	197	262	375
Maxim							22	35
Microchip Technology							89	111
Micro Linear							12	24
Micron Technology		5	24	117	36	63	115	331
Micro Power Systems		14	19	26	28	32	23	26
Mitel				35	29	33	39	43
Monolithic Memories	68	70	131	200	172			
Mosel							1	12
Mostek	210	220	315	467	110			
Motorola	730	791	1,150	1,693	1,281	1,403	1,758	2,259
National Semiconductor	686	655	864	1,153	882	1,363	1,431	1,575
NCR		28	75	80	75	94	116	132
Precision Monolithics	34	40	50	70	64	73	78	85
Raytheon	34	34	45	73	51	69	77	84

(Continued)

Final Market Share Estimates

Table 2 (Continued)

Worldwide Semiconductor Market Total Integrated Circuit Market Share Estimates (Millions of Dollars)

RCA	192	185	211	303	225			
Rockwell	70	80	57	57	44	124	172	174
Saratoga Semiconductor							4	10
SEEQ			9	53	33	32	50	60
Sierra Semiconductor						8	24	47
Siliconix	35	35	40	54	63	67	70	70
Silicon General							25	35
Silicon Systems	13	16	28	64	51	75	88	125
Solid State Scientific	34	33	33	40				
Solitron	5	5	4	6	8	12	13	13
Sprague	35	37	40	57	102	108	92	102
Standard Microsystems	19	26	42	70	54	54	41	41
Supertex	5	6	6	10	8	9	10	11
Synertek	72	88	96	60				
Teledyne	15	17	19	20	16	25	33	35
Texas Instruments	1,075	1,155	1,535	2,375	1,653	1,689	2,024	2,637
TRW	20	31	43	54	43	24	25	25
Unitrode		2	4	9	8	16	23	51
Universal				7	9	10	8	10
VISIC					1			
Vitellic						4	10	40
VLSI Technology		21	36	69	78	112	172	221
VTC					24	37	44	46
Waferscale						8	20	35
Weitek						17	21	35
Western Digital	27	30	47	68	56	53	70	100
Xicor		3	16	39	32	41	63	90
Xilinx						4	11	27
Zilog	39	44	70	88	59	64	75	90
Zymos			10	22	17	18	26	27
Others	220	185	104	117	117	126	91	91
Japanese Companies	3,307	3,674	5,411	8,500	7,409	10,510	13,981	20,375
Fuji Electric	13	15	25	31	20	35	42	64
Fujitsu	335	427	606	1,098	940	1,247	1,660	2,420
Hitachi	502	609	912	1,569	1,236	1,639	1,946	2,729
Matsushita	277	250	367	592	595	795	994	1,328
Mitsubishi	212	244	384	766	504	873	1,239	1,975
NEC	681	794	1,093	1,838	1,603	2,144	2,795	3,884
New JRC						76	109	146
MMB Semiconductor							104	199
OKI	88	121	216	343	289	404	619	902
Ricoh						55	65	85
Rohm	39	40	58	111	104	186	248	325
Sanken	18	19	25	47	53	81	119	157
Sanyo	148	146	247	305	314	407	556	811
Seiko Epson				115	93	165	245	311
Sharp	96	115	164	221	201	236	367	751
Sony			103	122	155	281	361	621
Toshiba	394	429	613	1,035	1,004	1,616	2,194	3,316
Yamaha							116	151
Others	504	464	598	307	299	270	202	200

(Continued)

Final Market Share Estimates

Table 2 (Continued)

Worldwide Semiconductor Market Total Integrated Circuit Market Share Estimates (Millions of Dollars)

	1,080	1,150	1,470	2,273	1,915	2,269	2,845	3,429
European Companies	5	7	7	13	18	22	26	28
ASEA-Brown Boveri							32	44
Austria Mikro Systeme							39	52
Ericsson							7	13
ES2							25	29
Eurosil	15	15	15	20	21	32		
Ferranti	34	68	68	85	78	92		
Inmos	4	26	58	146	85	80	91	110
Matra-Harris	6	13	13	41	42	44	48	71
MEDL	8	9	12	16	20	21	27	29
Nietec							32	42
Philips	590	570	694	1,090	808	1,028	1,186	1,281
Piher					4			
Plessey	46	50	58	75	89	96	183	237
Rifa	7	7	7	11	12	12		
SGS Thomson	110	126	177	263	240	497	646	833
Siemens	155	160	178	230	205	210	354	483
STC			30	38	16	18	12	21
Telefunken Electronic	38	36	51	63	68	79	110	124
Thomson	59	60	99	174	197			
Others	3	3	3	8	12	38	27	32
Rest of World Companies	35	60	119	164	227	346	565	1,274
Daewoo							1	7
Erso			25	32	26	20	30	
Gold Star				12	30	49	68	136
Hyundai						18	30	106
KEC		3	4	5	8	10	20	25
MIL								
Samsung		12	18	33	75	145	291	850
United Microelectronics		5	23	27	33	69	91	106
Others	35	40	49	55	55	35	34	44

Source: Dataquest
July 1989

Final Market Share Estimates

Table 3

Worldwide Semiconductor Market Bipolar Digital Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	2,338	2,412	3,015	4,783	3,684	4,325	4,760	5,200
North American Companies	1,546	1,547	1,933	3,078	2,319	2,515	2,589	2,761
Advanced Micro Devices	135	158	260	427	250	447	500	536
AMCC			7	18	21	19	27	27
Analog Devices						123	79	61
AT&T							2	6
BIT								
Cherry Semiconductor			3	4	3	3		
Chips & Technologies						10	25	30
Fairchild	226	206	246	410	329			
Harris	78	63	44	55	43	46	30	62
Honeywell				37	50	68	44	27
Hughes								
Intel	34	44	55	35	22	22	18	22
Interdesign				6	6			
Intersil	7	1	1					
ITT								
LSI Logic		2	3					
Monolithic Memories	68	70	131	200	170			
Motorola	192	203	258	456	379	393	429	435
National Semiconductor	175	165	210	290	194	511	521	550
Raytheon	14	14	15	37	23	42	51	55
RCA	6	7	6					
Solitron	1	1						
Sprague								
Supertex								
Teledyne	4	4	3	2	3	3	1	2
Texas Instruments	510	520	667	1,077	796	808	854	940
TRW				4	4			
VTC					6	10		
Others	96	89	24	20	20	10	8	8
Japanese Companies	379	451	600	936	782	1,230	1,540	1,791
Fuji Electric	1	1	1	2	1	2		
Fujitsu	99	129	174	305	267	397	495	653
Hitachi	95	111	144	223	195	321	463	501
Matsushita	10	7	13	22	21	28	26	30
Mitsubishi	38	44	68	123	75	134	122	127
NEC	78	89	115	134	129	176	247	292
New JRC						1	1	1
OKI	9	14	17	25	22	19	32	38
Rohm	7	8	10	15				
Sanyo	12	12	14	18	18	23	29	41
Sony			8					
Toshiba	14	16	21	37	33	129	125	108
Others	16	20	15	32	21			

(Continued)

Final Market Share Estimates

Table 3 (Continued)

**Worldwide Semiconductor Market
Bipolar Digital Market Share Estimates
(Millions of Dollars)**

European Companies	405	404	464	752	560	551	594	598
Ericsson							12	
Ferranti	14	32	36	46	49	58		
Matra-Harris				4	4		3	
Philips	298	278	344	589	372	389	405	413
Piher					4			
Plessey	18	19	21	27	30	32	68	94
Rifa	6	6	6	9	9	5		
SGS Thomson	14	5	10	20	26	21	20	20
Siemens	52	56	36	35	41	39	63	36
STC								7
Telefunken Electronic							15	19
Thomson	2	7	10	21	24			
Others	1	1	1	1	1	7	8	9
Rest of World Companies	8	10	18	17	23	29	37	50
Erso			4					
Gold Star				1	7	14	22	32
Others	8	10	14	16	16	15	15	18

Source: Dataquest
July 1989

Final Market Share Estimates

Table 4

Worldwide Semiconductor Market TTL Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	1,925	1,962	2,551	4,046	2,856	3,235	3,471	3,680
North American Companies	1,286	1,280	1,701	2,685	1,969	2,139	2,160	2,282
Advanced Micro Devices	135	154	260	424	245	438	491	520
Analog Devices								
AT&T						100	-62	48
Chips & Technologies						10	25	30
Fairchild	186	162	184	315	256			
Harris	77	62	44	55	43	29	23	58
Honeywell						23		
Hughes								
Intel	34	44	55	35	22	13		
Intersil	7	1	1					
ITT								
Monolithic Memories	68	70	131	200	170			
Motorola	88	94	150	283	237	246	245	221
National Semiconductor	172	162	205	283	190	450	420	425
Raytheon	14	14	15	30	16	37	46	48
RCA	6	7	6					
Sprague								
Supertex								
Texas Instruments	495	505	650	1,056	786	793	848	932
TRW				4	4			
Others	4	5						
Japanese Companies	287	345	454	713	438	646	825	894
Fujitsu				237	111	162	213	266
Hitachi				170	143	234	341	370
Matsushita				18	17	21	19	21
Mitsubishi				99	59	104	94	57
NEC				104	95	124	157	180
New JRC						1	1	
OKI				20				
Sanyo				14				
Toshiba				30				
Others				21	13			
European Companies	344	327	378	631	428	422	451	454
Ericsson							12	
Ferranti	4	6	3	3	3	4		
Matra-Harris				4	4		3	
Philips	272	254	320	551	337	363	380	393
Plessey							5	8
Rifa	3	3	3	5	5			
SGS Thomson	14	5	10	20	26	19	19	20
Siemens	48	51	31	26	28	29	11	8
Telefunken Electronic							15	19
Thomson	2	7	10	21	24			
Others	1	1	1	1	1	7	6	6
Rest of World Companies	8	10	18	17	21	28	35	50
Erso			4					
Gold Star				1	5	13	20	32
Others	8	10	14	16	16	15	15	18

Source: Dataquest
July 1989

Final Market Share Estimates

Table 5

Worldwide Semiconductor Market ECL Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	232	260	318	563	597	740	968	1,130
North American Companies	123	139	165	322	293	325	359	402
Advanced Micro Devices		4		3	2	5	5	12
AMCC			7	18	21	19	27	27
AT&T						23	17	13
BIT							2	6
Cherry Semiconductor						3		
Fairchild	31	34	54	90	69		44	27
Honeywell				37	50	45		
Intersil								
LSI Logic		2	3					
Motorola	89	96	96	160	134	144	179	202
National Semiconductor	3	3	5	7	4	61	72	100
Raytheon				7	7	5	5	7
Texas Instruments								
VTC					6	10		
Others						10	8	8
Japanese Companies	73	82	111	176	233	359	466	584
Fujitsu				52	140	205	262	336
Hitachi				36	36	76	107	125
Matsushita				4	4	7	7	9
Mitsubishi				21	14	28		
NEC				22	26	41	87	108
OKI				5	5	2	3	3
Rohm				15				
Sanyo				4				
Toshiba				6				3
Others				11	8			
European Companies	36	39	42	65	71	56	143	144
Philips	23	22	22	37	34	22	25	20
Pihser					3			
Plessey	9	12	15	19	21	22	63	86
SGS Thomson						2	1	
Siemens	4	5	5	9	13	10	52	28
STC								7
Others							2	3

Source: Dataquest
July 1989

Final Market Share Estimates

Table 6

Worldwide Semiconductor Market Other Bipolar Digital Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
Total Market	181	190	146	174	231	350	321	390
North American Companies	137	128	67	71	57	51	70	77
Advanced Micro Devices					3	4	4	4
Cherry Semiconductor			3	4	3			
Fairchild	9	10	8	5	4			
Harris	1	1				17	7	4
Intel						9	18	22
Interdesign				6	6			
ITT								
Motorola	15	13	12	13	8	3	5	12
National Semiconductor							29	25
Raytheon								
Solitron	1	1						
Sprague								
Supertex								
Teledyne	4	4	3	2	3	3	1	2
Texas Instruments	15	15	17	21	10	15	6	8
Others	92	84	24	20	20			
Japanese Companies	19	24	35	47	111	225	249	313
Fuji Electric				2	1	2		
Fujitsu				16	16	30	20	51
Hitachi				17	15	11	15	6
Mitsubishi				3	2	2	28	70
NEC				8	8	11	3	4
New JRC								1
OKI					17	17	29	35
Sanyo					18	23	29	41
Toshiba				1	33	129	125	105
European Companies	25	38	44	56	61	73		
Ferranti	10	26	33	43	46	54		
Philips	3	2	2	1	1	4		
Pihl					1			
Plessey	9	7	6	8	9	10		
Rifa	3	3	3	4	4	5		
Siemens								
Rest of World Companies					2	1	2	
Gold Star					2	1	2	
Others								

Source: Dataquest
July 1989

Final Market Share Estimates

Table 7

Worldwide Semiconductor Market Bipolar Digital Memory Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
Total Market	558	511	585	774	589	606	621	689
North American Companies	341	295	322	415	309	279	246	213
Advanced Micro Devices	45	57	81	130	96	122	120	104
AT&T						1	1	
Fairchild	64	50	45	45	36			
Harris	50	44	36	44	33	23	6	3
Intel	19	17	15	5				
Intersil	7	1	1					
Monolithic Memories	50	38	42	61	52			
Motorola	20	15	15	18	16	11	10	7
National Semiconductor	25	24	30	35	12	64	45	35
Raytheon	6	6	7	7	20	10	14	14
Supertex								
Texas Instruments	50	43	50	70	44	48	50	50
Others	5							
Japanese Companies	91	126	165	218	176	258	306	417
Fujitsu	46	63	90	136	95	145	178	254
Hitachi	25	40	52	59	55	81	95	119
Matsushita	1							
NEC	18	22	22	23	26	32	33	44
Others	1	1	1					
European Companies	126	90	98	141	104	69	69	59
Matra-Harris				4	4		3	
Philips	120	82	89	121	80	61	61	58
Siemens	4	4	3	5	7	7	4	
Thomson	2	4	6	11	13			
Others						1	1	1

Source: Dataquest
July 1989

Final Market Share Estimates

Table 8

Worldwide Semiconductor Market Bipolar Digital Logic Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	1,780	1,901	2,430	4,009	3,095	3,719	4,139	4,511
North American Companies	1,205	1,252	1,611	2,663	2,010	2,236	2,343	2,548
Advanced Micro Devices	90	101	179	297	154	325	380	432
AMCC			7	18	21	19	27	27
AT&T						122	78	61
BIT							2	6
Cherry Semiconductor			3	4	3	3		
Chips & Technologies						10	25	30
Fairchild	162	156	201	365	293			
Harris	28	19	8	11	10	23	24	59
Honeywell				37	50	68	44	27
Intel	15	27	40	30	22	22	18	22
Interdesign				6	6			
Intersil								
ITT								
LSI Logic		2	3					
Monolithic Memories	18	32	89	139	118			
Motorola	172	188	243	438	363	382	419	428
National Semiconductor	150	141	180	255	182	447	476	515
Raytheon	8	8	8	30	3	32	37	41
RCA	6	7	6					
Solitron	1	1						
Supertex								
Teledyne	4	4	3	2	3	3	1	2
Texas Instruments	460	477	617	1,007	752	760	804	890
TRW				4	4			
VTC					6	10		
Others	91	89	24	20	20	10	8	8
Japanese Companies	288	325	435	718	606	972	1,234	1,374
Fuji Electric	1	1	1	2	1	2		
Fujitsu	53	66	84	169	172	252	317	399
Hitachi	70	71	92	164	140	240	368	382
Matsushita	9	7	13	22	21	28	26	30
Mitsubishi	38	44	68	123	75	134	122	127
NEC	60	67	93	111	103	144	214	248
New JRC						1	1	1
OKI	9	14	17	25	22	19	32	38
Rohm	7	8	10	15				
Sanyo	12	12	14	18	18	23	29	41
Sony			8					
Toshiba	14	16	21	37	33	129	125	108
Others	15	19	14	32	21			

(Continued)

Final Market Share Estimates

Table 8 (Continued)

**Worldwide Semiconductor Market
Bipolar Digital Logic Market Share Estimates
(Millions of Dollars)**

European Companies	279	314	366	611	456	482	525	539
Ericsson							12	
Ferranti	14	32	36	46	49	58		
Philips	178	196	255	468	292	328	344	355
Piher					4			
Plessey	18	19	21	27	30	32	68	94
Rifa	6	6	6	9	9	5		
SGS Thomson	14	5	10	20	26	21	20	20
Siemens	48	52	33	30	34	32	59	36
STC							7	
Telefunken Electronic							15	19
Thomson		3	4	10	11			
Others	1	1	1	1	1	6	7	8
Rest of World Companies	8	10	18	17	23	29	37	50
Ersa			4					
Gold Star				1	7	14	22	32
Others	8	10	14	16	16	15	15	18

Source: Dataquest
July 1989

Final Market Share Estimates

Table 9

Worldwide Semiconductor Market MOS Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	*****	*****	*****	*****	*****	*****	*****	*****
Total Market	4,799	5,596	7,951	12,947	10,100	12,815	17,473	26,988
North American Companies	2,823	3,124	4,088	6,201	4,479	5,142	6,880	9,754
Advanced Micro Devices	121	146	224	480	304	317	414	482
Altera					4	12	21	37
AMCC								1
Analog Devices							12	20
AT&T						325	300	380
California Micro Devices							4	5
Catalyst							2	5
Chips & Technologies						31	87	130
Commodore	50	20						
Cypress Semiconductor Corp.				4	18	50	76	135
Electronic Arrays								
Exar				2	2	5	6	7
EXEL				1	4			
Fairchild	65	50	48	45	22			
General Instrument	141	160	100	71	51	54		
GE Solid State	3	2	3	4	6	223	233	269
Gould AMI Semiconductors	133	156	162	164	140	155	85	101
GTE Microcircuits	26	31	16	5	9	3	4	
Harris	52	46	63	105	111	108	106	121
Holt				3	7	12		
Moneywell					7	34	77	88
Hughes	21	20	25	32	36	39	43	47
IMI				10	12	7	13	15
IMP			16	28	25	32	42	47
Integrated Device Technology		3	10	33	51	72	98	171
Intel	491	581	720	1,166	998	969	1,473	2,328
Interdesign			7	8	7			
Intersil	19	25	23	23	21			
ITT	46	56	56	80	90	107	146	150
Lattice					3	10	13	22
Litronix								
LSI Logic		4	29	84	140	197	262	375
Microchip Technology							89	111
Micron Technology		5	24	117	36	63	115	331
Micro Power Systems		3	2	16	17			
Monolithic Memories					2			
Mosel							1	12
Mostek	210	220	315	467	110			
Motorola	372	425	697	967	668	728	990	1,399
National Semiconductor	255	235	280	430	318	355	415	485
NCR		28	75	80	75	94	116	132
Raytheon							1	2
RCA	110	108	133	210	160			
Rockwell	70	80	57	57	44	65	172	174
Saratoga Semiconductor							4	10
SEEQ			9	53	33	32	50	60
Sierra Semiconductor						5	12	24
Siliconix	12	5	4	4	3	5	7	3
Solid State Scientific	34	33	33	40				
Solitron	2	2	2	2				
Sprague					28	23	14	16
Standard Microsystems	19	26	42	70	54	54	41	41
Supertex	5	6	6	10	8	9		
Synertek	72	88	96	60				
Teledyne	9	2	2	16	2	2	2	
Texas Instruments	350	400	572	889	522	529	784	1,271

(Continued)

Final Market Share Estimates

Table 9 (Continued)

Worldwide Semiconductor Market MOS Market Share Estimates (Millions of Dollars)

TRW						6	7	5
Universal			7	9	10	6	6	
VLSI				1				
Vitellic					4	10	40	
VLSI Technology	21	36	69	78	112	172	221	
VTC				7	11	17	19	
Waferscale					8	20	35	
Weitek					17	21	35	
Western Digital	27	30	47	68	56	70	100	
Xicor		3	16	39	32	41	60	87
Xilinx					4	11	27	
Zilog	39	44	70	88	59	64	75	90
Zymos			10	22	17	18	26	27
Others	69	60	58	72	72	68	55	55
Japanese Companies	1,662	2,100	3,252	5,721	4,695	6,471	8,921	14,494
Fuji Electric	4	4	4	5	6	7	14	31
Fujitsu	218	280	406	753	631	775	1,014	1,616
Hitachi	288	392	638	1,167	852	1,053	1,173	1,885
Matsushita	91	89	160	283	269	388	592	875
Mitsubishi	99	137	247	541	323	544	812	1,453
NEC	438	549	786	1,414	1,174	1,606	2,006	3,123
New JRC						3	13	27
NMB Semiconductor							104	199
OKI	77	106	197	315	264	371	566	841
Ricoh						55	65	85
Rohm			2	5	5	8	13	54
Sanyo	23	28	50	67	68	88	150	299
Seiko Epson				115	93	147	231	296
Sharp	82	100	146	197	173	193	312	682
Sony			45	38	59	114	144	235
Toshiba	250	312	458	770	736	1,114	1,593	2,639
Yamaha							116	151
Others	92	103	113	51	43	3	3	3
European Companies	294	335	528	912	778	964	1,250	1,684
ASEA-Brown Boveri	5	7	7	13	18	22	26	28
Austria Mikro Systeme							29	40
Ericsson							11	6
ES2							7	13
Eurosil	15	15	15	20	21	32	25	29
Ferranti	4	13	11	12	6	10		
Inmos	4	26	58	146	85	80	91	110
Matra-Harris	6	13	13	33	36	42	43	71
MEDL	8	9	12	16	20	21	27	29
Mietec							32	42
Philips	100	99	155	266	228	312	342	402
Plessey	11	14	19	26	35	37	51	76
Rifa	1	1	1	2	3	4		
SGS Thomson	33	45	68	102	88	249	344	461
Siemens	65	64	80	126	92	89	171	327
STC			30	38	16	18	12	10
Telefunken Electronic	11	5	8	13	13	18	23	20
Thomson	30	23	50	93	107			
Others	1	1	1	6	10	30	16	20
Rest of World Companies	20	37	83	113	148	238	422	1,056
Daewoo								2
Erso			21	30	25	19	29	
Gold Star				1	5	5	20	63
Hyundai						18	30	106
MIL								
Samsung		10	13	25	55	117	242	765
United Microelectronics		5	23	27	33	69	91	106
Others	20	22	26	30	30	10	10	14

Source: Dataquest
July 1989

Final Market Share Estimates

Table 10

Worldwide Semiconductor Market NMOS Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	3,175	3,884	5,461	8,824	6,073	6,914	8,368	9,985
North American Companies	1,957	2,335	3,010	4,554	2,827	2,692	3,196	3,920
Advanced Micro Devices	121	146	214	470	304	308	389	407
AT&T						70	40	52
Commodore	48	17						
Electronic Arrays								
EXEL				1	2			
Fairchild	35	32	30	26	8			
General Instrument	107	140	95	64	42	43		
GE Solid State	3	2	3	4	6			
Gould AMI Semiconductors	67	118	118	77	67	62	21	25
GTE Microcircuits	25	26	1					
Harris							15	2
Hughes						2		
IMP			9	11	2	3	3	4
Intel	491	581	720	1,156	976	909	1,122	1,251
Intersil	6	8	5	3				
ITT	21	27	15	36	43	46	77	70
Microchip Technology							64	68
Micron Technology		5	24	117	36	63	115	253
Mostek	189	197	281	416	60			
Motorola	223	280	440	635	378	280	337	450
National Semiconductor	165	152	160	227	110	149	90	125
NCR		25	60	60	45	48	50	57
Rockwell	32	45	41	41	27	39	124	130
SEEQ			9	50	28	27	33	34
Solid State Scientific	1	1	1	1				
Sprague						14	7	7
Standard Microsystems	15	21	37	64	50	48	36	34
Supertex								
Synertek	72	88	96	60				
Texas Instruments	240	300	461	752	428	426	525	786
VLSI Technology		21	34	60	51	37	25	15
Western Digital	27	30	47	68	45			
Xicor		3	16	39	32	40	57	77
Zilog	39	44	70	88	59	58	61	68
Others	30	26	23	28	28	20	5	5
Japanese Companies	1,044	1,345	2,077	3,593	2,732	3,623	4,387	4,990
Fuji Electric	4	3	3					
Fujitsu	185	232	331	615	500	602	734	454
Hitachi	158	241	383	708	493	457	469	678
Matsushita	53	50	103	184	170	239	310	368
Mitsubishi	80	114	186	463	256	436	612	808
NEC	343	441	636	1,125	908	1,190	1,320	1,140
New JRC						2		
OKI	30	42	78	141	110	137	199	304
Ricoh						34	39	40
Rohm			1	3				
Sanyo	12	15	28	26	26	31	37	63
Sharp	18	23	36	46	40	60	90	185
Sony			36	19	19	29	30	42

(Continued)

Final Market Share Estimates

Table 10 (Continued)

Worldwide Semiconductor Market NMOS Market Share Estimates (Millions of Dollars)

Toshiba	80	101	165	230	181	404	522	875
Yamaha							23	31
Others	81	83	91	33	29	2	2	2
European Companies	174	201	361	660	478	507	571	706
Austria Mikro Systeme							6	8
Ferranti	2	3	3	3				5
Inmos	4	26	58	146	66	33	11	5
Matra-Harris	2	5	1	11	7	5	2	4
MEDL								
Mietec								7
Philips	63	64	103	187	138	179	178	175
Plessey	6	9	13	19	22	11	9	12
Rifa	1	1	1	2	2	2		
SGS Thomson	18	28	44	64	56	148	187	239
Siemens	45	44	63	114	87	84	145	227
STC			29	35	12	13	5	2
Telefunken Electronic	10	5	8	13	13	18	23	20
Thomson	22	15	37	64	72			
Others	1	1	1	2	3	14	5	7
Rest of World Companies		3	13	17	36	92	214	369
Erso			5	5	2	1	2	
Gold Star					1	1	1	7
Hyundai						1	9	33
Samsung				3	21	65	173	299
United Microelectronics		3	8	9	12	24	29	30

Source: Dataquest
July 1989

Final Market Share Estimates

Table 11

Worldwide Semiconductor Market PMOS Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	448	375	319	278	143	73	119	214
North American Companies	257	192	183	183	88	48	98	80
Advanced Micro Devices			10	10				
Fairchild	10	5	4	5	3			
General Instrument	31	15		3	2			
Gould AMI Semiconductors	24	8	15	15	3			
GTE Microcircuits	1	1	1					
Hughes	1	1	1	1			2	1
ITT	15	16	18	12	8	6	4	10
Microchip Technology							5	3
Mostek	3	3						
National Semiconductor	10	9	10	8	3			1
Rockwell	38	35	16	15	10	16	8	6
Solid State Scientific			1	1				
Standard Microsystems	4	5	5	5	2	2		
Texas Instruments	100	80	91	97	46	24	79	59
Western Digital								
Others	20	14	11	11	11			
Japanese Companies	129	125	111	74	43	20	16	130
Fujitsu	8	6	7	7	4		1	81
Mitachi	14	9	4	8	3	3	2	43
Matsushita	18	15	12	5	4	4	2	3
Mitsubishi	9	9	12	5	2	2	1	
NEC	30	31	25	32	22	8	7	
OKI	5	5	5	1				
Rolm								1
Sanyo	4	3	2	1				
Sharp	16	18	18	11	5	3	3	2
Toshiba	20	24	21	2	1			
Others	5	5	5	2	2			
European Companies	59	55	22	18	9	3	2	2
MEDL	3	3	3	3	2			
Philips	26	24						
Plessey	5	4	2	3	2	1	1	1
SGS Thomson	4	4						
Siemens	20	20	17	12	5	2	1	1
Telefunken Electronic	1							
Rest of World Companies	3	3	3	3	3	2	3	2
Gold Star						2	3	
Samsung								2
Others	3	3	3	3	3			

Source: Dataquest
July 1989

Final Market Share Estimates

Table 12

Worldwide Semiconductor Market CMOS Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	1,176	1,337	2,171	3,845	3,884	5,828	8,953	16,699
North American Companies	609	597	895	1,464	1,564	2,402	3,571	5,710
Advanced Micro Devices						9	25	75
Altera					4	12	21	37
Analog Devices							12	20
AT&T						255	260	328
California Micro Devices							4	5
Catalyst							2	5
Chips & Technologies						31	87	130
Commodore	2	3						
Cypress Semiconductor Corp.				4	18	50	76	135
Exar				2	2	5	6	7
EXEL					2			
Fairchild	20	13	14	14	11			
General Instrument	3	5	5	4	7	11		
GE Solid State						223	227	262
Gould AMI Semiconductors	42	30	29	72	70	93	64	76
GTE Microcircuits		4	14	5	9	3	4	
Harris	52	46	63	105	111	108	91	119
Holt				3	7	12		
Honeywell					7	34	77	88
Hughes	20	19	24	31	36	37	41	46
IMI				10	12	7	13	15
IMP			7	17	23	29	39	43
Integrated Device Technology		3	10	33	51	72	98	171
Intel				10	22	60	351	1,077
Interdesign			7	8	7			
Intersil	13	17	18	20	21			
ITT	10	13	23	32	39	55	65	70
Lattice					3	10	13	22
LSI Logic		4	29	84	140	197	262	374
Microchip Technology							20	40
Micron Technology								78
Micro Power Systems		3	2	16	17			
Monolithic Memories					2			
Mosel							1	12
Mostek	18	20	34	51	50			
Motorola	149	145	257	332	290	448	653	949
National Semiconductor	80	74	110	195	205	206	325	350
NCR		3	15	20	30	46	66	75
Raytheon							1	2
RCA	110	108	133	210	160			
Rockwell				1	7	10	40	38
SEEQ				3	5	5	17	26
Sierra Semiconductor						5	12	24
Siliconix	12	5	4	4	3	5	7	3
Solid State Scientific	33	32	31	38				
Solitron	2	2	2	2				
Sprague					28	9	7	9
Standard Microsystems				1	2	4	5	7
Supertex	5	6	6	10	8	9		
Teledyne	9	2	2	16	2	2	2	
Texas Instruments	10	20	20	40	48	79	180	415
TRW						6	7	5
Universal				7	9	10	6	6
VISIC					1			
Vitellic						4	10	40

(Continued)

Final Market Share Estimates

Table 12 (Continued)

Worldwide Semiconductor Market CMOS Market Share Estimates (Millions of Dollars)

VLSI Technology			2	9	27	75	147	206
VTC					7	11	17	19
Waferscale						8	20	35
Weitek						17	21	35
Western Digital					11	53	70	100
Xicor						1	3	10
Xilinx						4	11	27
Zilog						6	14	22
Zymos			10	22	17	18	26	27
Others	19	20	24	33	33	48	45	45
Japanese Companies	489	630	1,064	2,054	1,920	2,828	4,514	9,348
Fuji Electric		1	1	5	6	7	13	30
Fujitsu	25	42	68	131	126	173	279	1,081
Mitachi	116	142	251	451	356	593	699	1,157
Matsushita	20	24	45	94	95	145	280	504
Mitsubishi	10	14	49	73	66	106	199	645
NEC	65	77	125	257	244	410	679	1,965
New JRC						1	13	27
NMB Semiconductor							104	199
OKI	42	59	114	173	154	234	367	537
Ricoh						21	26	45
Rohm			1	2	5	8	13	53
Sanyo	7	10	20	40	42	57	113	236
Seiko Epson				115	93	147	231	296
Sharp	48	59	92	140	128	130	219	495
Sony			9	19	40	85	114	193
Toshiba	150	187	272	538	554	710	1,071	1,764
Yamaha							93	120
Others	6	15	17	16	12	1	1	1
European Companies	61	79	145	234	291	454	663	956
ASEA-Brown Boveri	5	7	7	13	18	22	26	28
Austria Mikro Systeme							23	32
Ericsson							11	6
ES2							7	13
Eurosil	15	15	15	20	21	32	25	29
Ferranti	2	10	8	9	6	10		
Inmos					19	47	80	105
Matra-Harris	4	8	12	22	29	37	41	67
MEDL	5	6	9	13	18	21	27	29
Mietec							18	17
Philips	11	11	52	79	90	133	164	227
Plessey		1	4	4	11	25	41	63
Rifa					1	2		
SGS Thomson	11	13	24	38	32	101	157	222
Siemens						3	25	99
STC			1	3	4	5	7	6
Thomson	8	8	13	29	35			
Others				4	7	16	11	13
Rest of World Companies	17	31	67	93	109	144	205	685
Daewoo								2
Erso			16	25	23	18	27	
Gold Star				1	4	2	16	56
Hyundai						17	21	73
Samsung		10	13	22	34	52	69	464
United Microelectronics		2	15	18	21	45	62	76
Others	17	19	23	27	27	10	10	14

Source: Dataquest
July 1989

Final Market Share Estimates

Table 13

Worldwide Semiconductor Market BiCMOS Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market							33	90
North American Companies							15	44
AMCC								1
GE Solid State							6	7
LSI Logic								1
National Semiconductor								9
Saratoga Semiconductor							4	10
Texas Instruments								11
Others							5	5
Japanese Companies							4	26
Fuji Electric							1	1
Hitachi							3	7
NEC								18
European Companies							14	20
Mietec							14	18
STC								2

Source: Dataquest
July 1989

Final Market Share Estimates

Table 14

Worldwide Semiconductor Market MOS Memory Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	2,071	2,705	3,719	6,225	3,816	4,511	6,056	11,692
North American Companies	1,294	1,545	1,795	2,605	1,364	1,356	1,701	2,836
Advanced Micro Devices	98	112	161	258	181	128	155	207
AT&T						55	25	24
Catalyst							2	5
Commodore	25	10						
Cypress Semiconductor Corp.				4	18	42	57	94
Exar						2	2	3
EXEL				1	3			
Fairchild	16	7	5	4	4			
General Instrument	71	99	54	43	26	31		
GE Solid State						24	23	29
Gould AMI Semiconductors	34	54	42	29	12	11	8	15
GTE Microcircuits	25	26	5	2				
Harris	22	18	21	35	30	40	36	26
Honeywell						7	5	14
Hughes	3	2	3	4	4	2	2	
IMP			2					
Integrated Device Technology		3	10	30	49	66	85	135
Intel	247	290	325	380	288	299	326	392
Intersil	10	15	5	3	2			
ITT	16	20	1					
Lattice					3	8	4	2
Microchip Technology							59	82
Micron Technology		5	24	117	36	63	115	331
Micro Power Systems		1						
Mosel							1	12
Mostek	150	152	215	350	60			
Motorola	106	157	233	314	100	51	89	236
National Semiconductor	117	110	95	110	50	57	80	135
NCR		22	53	22	10	16	6	6
RCA	29	32	28	40	26			
Rockwell	35	40	16	9	2	1		
Saratoga Semiconductor							4	10
SEEQ			9	50	28	27	37	46
Solid State Scientific	2	3	10	6				
Sprague					2	7		
Supertex	2	2	1	1	1			
Synertek	56	68	47	30				
Texas Instruments	200	250	371	670	349	325	445	834
VISIC					1			
Vitellic						4	10	40
VLSI Technology		16	20	24	17	24	23	16
Waferscale						5	12	25
Xicor		3	16	39	32	41	60	87
Zilog								
Others	30	28	23	30	30	20	30	30

(Continued)

Final Market Share Estimates

Table 14 (Continued)

Worldwide Semiconductor Market MOS Memory Market Share Estimates (Millions of Dollars)

Japanese Companies	714	1,057	1,720	3,272	2,193	2,878	3,909	7,597
Fujitsu	145	190	278	527	412	485	634	1,067
Hitachi	200	291	500	971	662	719	576	1,114
Matsushita	9	9	29	80	58	71	91	230
Mitsubishi	34	81	158	370	147	289	492	966
NEC	185	236	343	713	470	586	838	1,490
MMB Semiconductor							104	199
OKI	31	59	101	149	91	90	193	353
Ricoh						16	18	26
Rohm								8
Sanyo				1	1	5	27	87
Seiko Epson				23	13	44	71	94
Sharp	11	16	34	32	28	55	130	344
Sony			4	4	12	39	56	103
Toshiba	80	142	221	396	297	479	679	1,516
Others	19	33	52	6	3			
European Companies	63	101	192	329	221	200	235	464
Austria Mikro Systeme							2	4
Eurosil	3	2	2					
Inmos	4	26	58	146	83	69	43	53
Matra-Harris	5	8	10	15	15	16	13	28
MEDL						4	5	5
Philips	24	26	27	32	35	14	18	35
SGS Thomson	13	12	15	22	24	52	95	185
Siemens	10	20	29	45	26	31	52	150
STC			26	31	8	10	6	2
Thomson	4	7	25	38	30			
Others						4	1	2
Rest of World Companies		2	12	19	38	77	211	795
Erso			4	7	5	3	5	
Gold Star					1			27
Hyundai						4	30	106
Samsung				3	21	65	170	650
United Microelectronics		1	5	6	8	5	6	12
Others		1	3	3	3			

Source: Dataquest
July 1989

Final Market Share Estimates

Table 15

Worldwide Semiconductor Market MOS Microdevices Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	1,084	1,318	1,979	3,229	2,745	3,489	5,108	7,144
North American Companies	688	801	1,162	1,873	1,543	1,707	2,663	3,872
Advanced Micro Devices	17	28	58	203	86	117	178	183
Analog Devices							12	20
AT&T						45	50	39
California Micro Devices							1	1
Chips & Technologies						31	87	130
Commodore	3	2						
Cypress Semiconductor Corp.								7
EXEL					1			
Fairchild	24	23	24	17	10			
General Instrument	11	20	9	7	8			
GE Solid State						27	41	48
Gould AMI Semiconductors	9	12	9	8	7	6		
GTE Microcircuits				1	5		1	
Harris	2	8	26	52	58	42	44	62
Hughes	1	2	2	3	3	2	2	2
IMI								1
Integrated Device Technology					1	2	5	15
Intel	216	258	358	743	670	628	1,087	1,835
Intersil	4	5	6	5	19			
ITT	1	3	8	10	11	13	21	15
LSI Logic								18
Microchip Technology							19	18
Mostek	26	28	42	55	20			
Motorola	124	128	210	291	272	342	520	699
National Semiconductor	70	63	75	115	106	122	140	150
NCR			6	10	9	10	8	6
RCA	14	18	27	34	28			
Rockwell	10	18	25	32	26	40	46	51
Sierra Semiconductor							1	1
Standard Microsystems	10	16	30	50	40	43	36	34
Synertek	11	16	29	15				
Texas Instruments	80	95	135	117	88	92	169	234
VLSI Technology							18	54
Weitek						17	21	35
Western Digital	6	7	8	12	11	50	70	100
Zilog	39	44	70	88	59	64	75	90
Zymos							4	17
Others	10	7	5	5	5	5	7	7
Japanese Companies	359	467	720	1,154	1,030	1,547	2,096	2,817
Fujitsu	48	60	85	121	106	120	146	202
Hitachi	50	66	85	120	110	228	402	525
Matsushita	45	48	88	119	111	167	199	230
Mitsubishi	20	25	54	156	122	205	267	381
NEC	142	166	237	411	375	478	566	790
OKI	2	6	19	46	45	68	101	134
Ricoh						11	14	19
Rohm			1	2	1	2	3	16
Sanyo		5	23	35	36	44	53	70
Seiko Epson				1			6	12
Sharp	25	29	45	62	46	26	34	54
Sony			25			17	21	37
Toshiba	8	30	45	70	69	180	283	346
Others	19	32	13	11	9	1	1	1

(Continued)

Final Market Share Estimates

Table 15 (Continued)

**Worldwide Semiconductor Market
MOS Microdevices Market Share Estimates
(Millions of Dollars)**

European Companies	33	46	90	191	156	215	310	401
Eurosil	1	2	2	2	2	4	3	2
Ferranti		2	2	1				
Inmos					2	11	48	57
Matra-Harris	1	5	1	11	12	18	19	21
MEDL							1	1
Philips	17	18	45	104	64	85	100	114
SGS Thomson	6	10	24	31	20	80	95	118
Siemens	4	3	6	19	16	17	44	88
Thomson	4	6	10	23	40			
Rest of World Companies	4	4	7	11	16	20	39	54
Erso					1	1	2	
Gold Star				1	2	1	1	4
Samsung							8	15
United Microelectronics			1	4	7	18	28	35
Others	4	4	6	6	6			

Source: Dataquest
July 1989

Final Market Share Estimates

Table 16

Worldwide Semiconductor Market MOS Logic Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	1,644	1,573	2,253	3,493	3,540	4,815	6,309	8,152
North American Companies	841	778	1,131	1,723	1,572	2,079	2,516	3,046
Advanced Micro Devices	6	6	5	19	37	72	81	92
Altera					4	12	21	37
AMCC								1
AT&T						225	225	317
California Micro Devices							3	4
Commodore	22	8						
Cypress Semiconductor Corp.						8	19	34
Exar				2	2	3	4	4
Fairchild	25	20	19	24	8			
General Instrument	59	41	37	21	17	14		
GE Solid State	3	2	3	4	6	172	169	192
Gould AMI Semiconductors	90	90	111	127	121	138	77	86
GTE Microcircuits	1	5	11	2	4	3	3	
Harris	28	20	16	18	23	26	26	33
Holt				3	7	12		
Honeywell					7	27	72	74
Hughes	17	16	20	25	29	35	39	45
IMI				10	12	7	13	14
IMP			14	28	25	32	42	47
Integrated Device Technology				3	1	4	8	21
Intel	28	33	37	43	40	42	60	101
Interdesign			7	8	7			
Intersil	5	5	12	15				
ITT	29	33	47	70	79	94	125	135
Lattice						2	9	20
LSI Logic		4	29	84	140	197	262	357
Microchip Technology		2	2	16	17		11	11
Micro Power Systems					2			
Monolithic Memories								
Mostek	34	40	58	62	30			
Motorola	142	140	254	362	296	335	381	464
National Semiconductor	68	62	110	205	162	176	195	200
NCR		6	16	48	56	68	102	120
Raytheon							1	2
RCA	67	58	78	136	106			
Rockwell	25	22	16	16	16	24	126	123
SEEQ				3	5	5	13	14
Sierra Semiconductor						5	11	23
Siliconix	12	5	4	4	3	5	7	3
Solid State Scientific	32	30	23	34				
Solitron	2	2	2	2				
Sprague					26	16	14	16
Standard Microsystems	9	10	12	20	14	11	5	7
Supertex	3	4	5	9	7	9		
Synertek	5	4	20	15				
Teledyne	9	2	2	16	2	2	2	
Texas Instruments	70	55	66	102	85	112	170	203
TRW						6	7	5
Universal				7	9	10	6	6
VLSI Technology		5	16	45	61	88	131	151
VTC					7	11	17	19
Waferscale						3	8	10
Western Digital	21	23	39	56	45	3		
Xilinx						4	11	27
Zymos			10	22	17	18	22	10
Others	29	25	30	37	37	43	18	18

(Continued)

Final Market Share Estimates

Table 16 (Continued)

Worldwide Semiconductor Market MOS Logic Market Share Estimates (Millions of Dollars)

Japanese Companies	589	576	812	1,295	1,473	2,046	2,916	4,080
Fuji Electric	4	4	4	5	6	7	14	31
Fujitsu	25	30	43	105	113	170	234	347
Nitachi	38	35	53	76	81	106	195	246
Matsushita	37	32	43	84	100	150	302	415
Mitsubishi	45	31	35	15	55	50	53	106
NEC	111	147	206	290	329	544	602	843
New JRC						3	13	27
OKI	44	41	77	120	128	213	272	354
Ricoh						28	33	40
Rohm			1	3	4	6	10	30
Sanyo	23	23	27	31	31	39	70	142
Seiko Epson				91	80	103	154	190
Sharp	46	55	67	103	99	112	148	284
Sony			16	34	47	58	67	95
Toshiba	162	140	192	304	370	455	631	777
Yamaha							116	151
Others	54	38	48	34	31	2	2	2
European Companies	198	188	246	392	401	549	705	819
ASEA-Brown Boveri	5	7	7	13	18	22	26	28
Austria Mikro Systeme							27	36
Ericsson							11	6
ES2							7	13
Eurosil	11	11	11	18	19	28	22	27
Ferranti	4	11	9	11	6	10		
Matra-Harris			2	7	9	8	11	22
MEDL	8	9	12	16	20	17	21	23
Mietec							32	42
Philips	59	55	83	130	129	213	224	253
Plessey	11	14	19	26	35	37	51	76
Rifa	1	1	1	2	3	4		
SGS Thomson	14	23	29	49	44	117	154	158
Siemens	51	41	45	62	50	41	75	89
STC			4	7	8	8	6	8
Telefunken Electronic	11	5	8	13	13	18	23	20
Thomson	22	10	15	32	37			
Others	1	1	1	6	10	26	15	18
Rest of World Companies	16	31	64	83	94	141	172	207
Daewoo								2
Erso			17	23	19	15	22	
Gold Star					2	4	19	32
Hyundai						14		
Samsung		10	13	22	34	52	64	100
United Microelectronics		4	17	17	18	46	57	59
Others	16	17	17	21	21	10	10	14
SWAG for ROW Companies								

Source: Dataquest
July 1989

Final Market Share Estimates

Table 17

Worldwide Semiconductor Market Analog Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	2,886	2,849	3,734	4,888	4,766	6,478	7,654	8,880
North American Companies	1,232	1,302	1,679	2,402	2,201	2,836	3,027	3,475
Advanced Micro Devices	23	25	21	30	61	64	72	66
Analog Devices	89	101	145	218	226	243	280	340
AT&T						282	216	247
Burr-Brown				71	78	113	120	144
California Micro Devices							20	23
Cherry Semiconductor	6	10	10	12	11	19	29	33
Exar				36	30	36	38	40
Fairchild	79	77	90	140	100			
General Instrument	11	12	13	20	19	15		
GE Solid State						127	125	120
GTE Microcircuits		1	3	19	18	19	20	
Harris	35	47	64	96	93	113	139	146
Holt				7	5		9	9
Honeywell							26	27
IMI						5		
Interdesign			18	20	18			
Intersil	40	36	54	55	50			
ITT	32	34	34	45	50	61	51	64
Linear Technology			4	16	19	29	43	59
Maxim							22	35
Micro Linear							12	24
Micro Power Systems		11	17	10	11	32	23	26
Mitel				35	29	33	39	43
Motorola	166	163	195	270	234	282	339	425
National Semiconductor	256	255	374	433	370	497	495	540
Precision Monolithics	34	40	50	70	64	73	78	85
Raytheon	20	20	30	36	28	27	25	27
RCA	76	70	72	93	65			
Rockwell						59		
Sierra Semiconductor						3	12	23
Siliconix	23	30	36	50	60	62	63	67
Silicon General							25	35
Silicon Systems	13	16	28	64	51	75	88	125
Solitron	2	2	2	4	8	12	13	13
Sprague	35	37	40	57	74	85	78	86
Supertex							10	11
Teledyne	2	11	14	2	11	20	30	33
Texas Instruments	215	235	296	409	335	352	386	426
TRW	20	31	43	50	39	18	18	20
Unitrode		2	4	9	8	16	23	51
Universal							2	4
VTC					11	16	27	27
Xicor							3	3
Others	55	36	22	25	25	48	28	28

(Continued)

Final Market Share Estimates

Table 17 (Continued)

Worldwide Semiconductor Market Analog Market Share Estimates (Millions of Dollars)

Japanese Companies	1,266	1,123	1,559	1,843	1,932	2,809	3,520	4,090
Fuji Electric	8	10	20	24	13	26	28	33
Fujitsu	18	18	26	40	42	75	151	151
Hitachi	119	106	130	179	189	265	310	343
Matsushita	176	154	194	287	305	379	376	423
Mitsubishi	75	63	69	102	106	195	305	395
NEC	165	156	192	290	300	360	542	469
New JRC						72	95	118
OKI	2	1	2	3	3	14	21	23
Rohm	32	32	46	91	99	178	235	271
Sanken	18	19	25	47	53	81	119	157
Sanyo	113	106	183	220	228	296	377	471
Seiko Epson						18	14	15
Sharp	14	15	18	24	28	43	55	69
Sony			50	84	96	167	217	386
Toshiba	130	101	134	228	235	373	476	569
Others	396	341	470	224	235	267	199	197
European Companies	381	411	478	609	577	754	1,001	1,147
Austria Mikro Systeme							3	4
Ericsson							16	46
Ferranti	16	23	21	27	23	24		
Matra-Harris				4	2	2	2	
Philips	192	193	195	235	208	327	439	466
Plessey	17	17	18	22	24	27	64	67
Rifa						3		
SGS Thomson	63	76	99	141	126	227	282	352
Siemens	38	40	62	69	72	82	120	120
STC								4
Telefunken Electronic	27	31	43	50	55	61	72	85
Thomson	27	30	39	60	66			
Others	1	1	1	1	1	1	3	3
Rest of World Companies	7	13	18	34	56	79	106	168
Daewoo							1	5
Erso				2	1	1	1	
Gold Star				10	18	30	26	41
KEC		3	4	5	8	10	20	25
Samsung		2	5	8	20	28	49	85
Others	7	8	9	9	9	10	9	12

Source: Dataquest
July 1989

Final Market Share Estimates

Table 18

Worldwide Semiconductor Market Total Discrete Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	3,981	3,553	3,865	4,986	4,579	5,730	6,655	7,612
North American Companies	1,612	1,467	1,493	1,822	1,647	1,943	2,051	2,171
Acrian	2	17	18	21	18	13	15	21
AT&T						247	200	161
Communications Transistor	10							
Fairchild	76	62	64	66	39			
General Instrument	74	73	85	130	100	115	132	164
General Motors	13							
GE Solid State	101	85	94	104	92	139	146	145
Hewlett-Packard	22	24	30	40	40	52	57	57
Honeywell							10	10
International Rectifier	84	80	81	115	128	125	151	192
Intersil	9	9	2	11	8			
ITT	96	100	95	125	130	144	160	146
Motorola	451	419	482	607	532	604	652	752
National Semiconductor	43	44	40	45	37	64	75	75
Powerex						94	106	115
Raytheon	17	18	20	22	28	15	12	15
RCA	94	79	74	88	76			
Siliconix	25	25	30	43	47	45	45	61
Solid State Scientific								
Solitron	24	24	29	31	30	30	34	33
Sprague	5	9	15	27	13	14	17	18
Supertex	3	3	4	3	5	8	9	10
Teledyne	4	4	3	3				
Texas Instruments	150	90	48	59	56	58	64	63
TRW	58	51	34	29	36	43	49	
Unitrode	70	71	77	97	81	66	46	62
VQSI	31	28	27	27	22	17	21	21
Westinghouse	59	53	58	52	52			
Others	91	99	83	77	77	50	50	50
Japanese Companies	1,618	1,364	1,678	2,330	2,100	2,745	3,376	4,056
Fuji Electric	93	80	90	132	126	163	206	279
Fujitsu	25	23	32	40	37	53	70	82
Hitachi	275	240	331	430	393	476	625	707
Matsushita	181	146	188	247	227	266	318	377
Mitsubishi	109	94	119	185	140	221	227	310
NEC	291	263	293	379	351	426	518	571
New JRC						7	10	8
OKI	5	4	3	4	4	6	7	9
Rohm	61	48	74	112	110	171	200	287
Sanken	72	62	67	109	97	133	162	207
Sanyo	47	64	58	105	103	159	210	210
Sony			16	34	42	62	72	112
Toshiba	304	217	272	418	368	556	703	864
Others	155	123	135	135	102	46	48	33

(Continued)

Final Market Share Estimates

Table 18 (Continued)

**Worldwide Semiconductor Market
Total Discrete Market Share Estimates
(Millions of Dollars)**

European Companies	741	686	642	764	767	968	1,125	1,250
ASEA-Brown Boveri	4	5	4	5	5	36	69	76
Brown-Boveri	24	24	20	25	29			
Fagor								27
Ferranti	14	14	17	20	20	18		
MEDL	11	12	13	15	15	18	20	22
Philips	219	208	204	217	232	298	390	432
Piher	8	6	5	6	10	7		
Plessey							22	25
Semikron	29	34	36	40	48	72	79	91
SGS Thomson	50	49	53	72	60	199	213	254
Siemens	146	131	114	150	140	215	218	201
STC			4	2	1			1
TAG	21	21	17	20	18	18	21	23
Telefunken Electronic	82	82	53	60	61	82	86	91
Thomson	121	88	96	127	123			
Others	12	12	6	5	5	5	7	7
Rest of World Companies	10	36	52	70	65	74	103	135
Gold Star				3	3	1	1	1
KEC		11	20	30	32	38	55	65
Samsung		15	22	27	20	25	37	55
Others	10	10	10	10	10	10	10	14

Source: Dataquest
July 1989

Final Market Share Estimates

Table 19

Worldwide Semiconductor Market Transistor Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	2,000	1,803	1,946	2,465	2,269	2,802	3,383	3,908
North American Companies	824	748	734	876	809	895	951	991
Acrian	2	17	18	21	18	13	15	21
AT&T						32	27	20
Communications Transistor	10							
Fairchild	35	28	24	22	12			
General Instrument								
General Motors	11							
GE Solid State	33	35	32	33	27	102	98	106
Hewlett-Packard	13	11	10	11	14	18	18	18
International Rectifier	14	18	20	34	43	45	51	63
Intersil	9	9	2	11	8			
ITT	21	24	26	36	38	53	57	45
Motorola	296	276	308	374	321	361	390	450
National Semiconductor	43	44	40	45	37	33	40	41
Powerex						5	11	15
Raytheon	17	18	20	16	23	15	12	15
RCA	74	61	59	70	62			
Siliconix	25	25	30	43	47	45	45	61
Solid State Scientific								
Solitron	16	16	20	21	20	25	29	28
Sprague	5	9	13	13	13	12	13	13
Supertex	3	3	4	3	5	8	9	10
Teledyne	4	4	3	3				
Texas Instruments	115	80	45	57	54	58	64	63
TRW	58	51	34	28	36	43	49	
Unitrode	9	10	15	15	11	7	3	2
Westinghouse	1	1	1	5	5			
Others	10	8	10	15	15	20	20	20
Japanese Companies	820	702	854	1,153	1,035	1,410	1,827	2,243
Fuji Electric	14	13	17	31	29	40	57	98
Fujitsu	25	23	32	40	37	53	70	82
Hitachi	108	90	123	155	137	173	232	271
Matsushita	110	94	122	157	140	191	240	285
Mitsubishi	39	33	38	56	64	94	89	114
NEC	171	153	162	205	179	216	338	384
OKI	5	4	1					
Rohm	29	20	31	74	76	117	134	206
Sanken	29	27	30	44	38	43	48	61
Sanyo	33	46	51	84	84	109	151	170
Sony			14	8	7	16	19	35
Toshiba	157	108	133	200	173	325	415	512
Others	100	91	100	99	71	33	34	25

(Continued)

Final Market Share Estimates

Table 19 (Continued)

Worldwide Semiconductor Market Transistor Market Share Estimates (Millions of Dollars)

European Companies	351	322	311	371	365	428	507	551
ASEA-Brown Boveri							1	1
Brown-Boveri	7	6	6	7	8			
Ferranti	7	7	9	11	11	7		
MEDL	2	3	3	3	3	4	5	6
Philips	132	126	124	131	142	169	233	248
Piher	5	4	3	4	7	5		
Plessey							9	10
Semikron								1
SGS Thomson	50	49	53	72	60	96	113	142
Siemens	68	60	52	68	64	115	117	111
Telefunken Electronic	29	29	20	22	23	30	26	29
Thomson	45	33	38	50	44			
Others	6	5	3	3	3	2	3	3
Rest of World Companies	5	31	47	65	60	69	98	123
Gold Star				3	3	1	1	1
KEC		11	20	30	32	38	55	60
Samsung		15	22	27	20	25	37	55
Others	5	5	5	5	5	5	5	7

Source: Dataquest
July 1989

Final Market Share Estimates

Table 20

Worldwide Semiconductor Market Diode Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	1,408	1,247	1,362	1,805	1,636	1,923	2,176	2,474
North American Companies	571	544	583	731	644	686	728	767
AT&T						49	41	31
Fairchild	41	34	40	43	27			
General Instrument	74	73	85	130	100	115	132	164
General Motors	2							
GE Solid State	23	14	12	13	12	8	8	7
Hewlett-Packard	9	13	20	29	26	34	39	39
Honeywell							10	10
International Rectifier	47	42	41	58	62	54	64	75
ITT	64	67	69	89	92	91	103	67
Motorola	121	113	133	167	155	176	182	214
National Semiconductor						31	35	34
Powerex						33	30	30
RCA	2	2	3	3	3			
Solid State Scientific								
Solitron	8	8	9	10	10	5	5	5
Sprague			2	14		2	2	3
Teledyne								
Texas Instruments	25	5						
TRW				1				
Unitrode	52	51	56	74	62	51	36	47
VQSI	31	28	27	27	22	17	21	21
Westinghouse	22	20	22	20	20			
Others	50	74	64	53	53	20	20	20
Japanese Companies	567	458	561	819	732	926	1,106	1,285
Fuji Electric	45	33	39	60	57	79	97	117
Hitachi	135	120	164	213	194	235	315	343
Matsushita	55	38	52	68	60	71	78	92
Mitsubishi	22	19	15	23	3	4	5	5
NEC	84	77	88	114	105	132	118	123
New JRC						1	10	8
Rohm	27	19	29	38	34	54	66	81
Sanken	35	29	31	65	59	90	114	146
Sanyo	11	15	7	21	19	25	28	32
Sony			2	26	35	46	53	77
Toshiba	112	80	106	163	142	179	211	256
Others	41	28	29	28	24	10	11	5

(Continued)

Final Market Share Estimates

Table 20 (Continued)

Worldwide Semiconductor Market Diode Market Share Estimates (Millions of Dollars)

European Companies	265	240	213	250	255	306	337	410
ASEA-Brown Boveri						11	15	16
Brown-Boveri	9	10	7	8	9			
Fagor								27
Ferranti	7	7	8	9	9	11		
MEDL	4	4	4	4	4	5	5	5
Philips	80	76	74	78	81	119	137	159
Pihler	2	1	1	1	2	1		
Plessey							13	15
Semikron	10	12	12	14	18	28	30	35
SGS Thomson						36	44	68
Siemens	53	48	41	54	50	56	57	50
STC								1
Telefunken Electronic	38	38	22	24	24	37	34	32
Thomson	59	40	43	57	57			
Others	3	4	1	1	1	2	2	2
Rest of World Companies	5	5	5	5	5	5	5	12
KEC								5
Others	5	5	5	5	5	5	5	7

Source: Dataquest
July 1989

Final Market Share Estimates

Table 21

Worldwide Semiconductor Market Thyristor Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	362	313	314	368	394	439	500	567
North American Companies	157	131	140	147	134	129	147	161
GE Solid State	34	26	32	35	32	8	8	3
International Rectifier	23	20	20	23	23	19	27	32
ITT								
Motorola	27	23	26	33	27	32	34	39
Powerex						56	65	70
Raytheon								
RCA	18	16	12	15	11			
Texas Instruments	6	3	2	1	1			
Unitrode	7	8	4	4	4	4	3	7
Westinghouse	36	32	35	27	27			
Others	6	3	9	9	9	10	10	10
Japanese Companies	106	87	89	118	152	169	168	198
Fuji Electric	2	2	2	3	3	2	3	3
Hitachi	16	11	17	22	22	25	29	36
Matsushita	5	4	4	5	4			
Mitsubishi	29	25	15	23	37	56	54	61
NEC	21	19	21	28	29	34	15	16
Sanken	8	6	6					
Toshiba	21	16	19	30	51	50	65	80
Others	4	4	5	7	6	2	2	2
European Companies	99	95	85	103	108	141	185	208
ASEA-Brown Boveri	2	3	2	2	2	19	43	48
Brown-Boveri	5	5	5	7	9			
MEDL	3	3	3	4	4	9	10	11
Philips	6	5	5	6	9	7	10	12
Piher	1	1	1	1	1	1		
Semikron	11	13	14	15	17	22	26	29
SGS Thomson						27	28	44
Siemens	23	20	18	24	22	27	27	21
TAG	19	20	16	18	18	18	21	23
Telefunken Electronic	13	13	10	12	12	11	19	19
Thomson	16	12	11	14	14			
Others							1	1

Source: Dataquest
July 1989

Final Market Share Estimates

Table 22

Worldwide Semiconductor Market Other Discrete Market Share Estimates (Millions of Dollars)

	1981 -----	1982 -----	1983 -----	1984 -----	1985 -----	1986 -----	1987 -----	1988 -----
Total Market	211	190	243	348	279	566	596	663
North American Companies	60	44	36	68	60	233	225	252
AT&T						166	132	110
Fairchild				1				
GE Solid State	11	10	18	23	21	21	32	29
International Rectifier						7	9	22
ITT	11	9						34
Motorola	7	7	15	33	29	35	46	49
National Semiconductor								
Raytheon				6	5			
RCA								
Sprague							2	2
Texas Instruments	4	2	1	1	1			
Unitrode	2	2	2	4	4	4	4	6
Others	25	14						
Japanese Companies	125	117	174	240	180	240	275	330
Fuji Electric	32	32	32	38	38	42	49	61
Hitachi	16	19	27	40	39	43	49	57
Matsushita	11	10	10	17	23	4		
Mitsubishi	19	17	51	83	35	67	79	130
NEC	15	15	22	32	38	44	47	48
New JRC						6		
OKI			2	4	4	6	7	9
Rohm	5	8	14					
Sanyo	3	3				25	31	8
Toshiba	14	13	14	25	2	2	12	16
Others	10		1	1	1	1	1	1
European Companies	26	29	33	40	39	93	96	81
ASEA-Brown Boveri	2	2	2	3	3	6	10	11
Brown-Boveri	3	3	2	3	3			
MEDL	2	2	3	4	4			
Philips	1	1	1	2		3	10	13
Semikron	8	9	10	11	13	22	23	26
SGS Thomson						40	28	
Siemens	2	3	3	4	4	17	17	19
STC			4	2	1			
TAG	2	1	1	2				
Telefunken Electronic	2	2	1	2	2	4	7	11
Thomson	1	3	4	6	8			
Others	3	3	2	1	1	1	1	1

Source: Dataquest
July 1989

Final Market Share Estimates

Table 23

Worldwide Semiconductor Market Total Optoelectronic Market Share Estimates (Millions of Dollars)

	1981	1982	1983	1984	1985	1986	1987	1988
	-----	-----	-----	-----	-----	-----	-----	-----
Total Market	797	822	972	1,221	1,213	1,486	1,709	2,179
North American Companies	388	389	372	445	405	373	383	425
AT&T						6	7	10
Fairchild	16	15	7	4	2			
General Instrument	40	37	43	51	38	34	28	
GE Solid State	17	15	18	28	20	32	16	21
Hewlett-Packard	70	78	100	142	166	166	186	213
Honeywell	18	20	24	27	31	35	30	30
International Rectifier	2	2	3					
ITT	1							
Litronix	22	23						
Monsanto								
Motorola	9	9	15	19	17	18	24	24
National Semiconductor	13	9	10	15	6			
Quality Technologies								40
RCA	7	9	12	11	9			
Specronics								
Texas Instruments	70	60	55	50	33	34	39	41
TRW	36	34	41	64	46	38	43	36
Others	67	78	44	34	37	10	10	10
Japanese Companies	327	338	494	626	636	905	1,093	1,511
Fuji Electric	5	7	9	12	10	7	4	3
Fujitsu	15	15	35	52	43	62	71	105
Hitachi	30	30	34	52	42	42	47	70
Matsushita	29	31	45	89	84	115	145	178
Mitsubishi		2	2	13	18	29	26	27
NEC	21	22	27	34	30	45	55	88
New JRC						9	11	15
OKI	5	4	10	15	14	18	25	36
Rohm	13	13	19	29	34	56	70	109
Sanien	9	9	11	6	6	10	13	19
Sanyo	31	31	46	45	40	49	85	62
Sharp	62	77	115	116	127	197	223	285
Sony			9	13	55	115	138	217
Toshiba	76	69	98	108	96	109	132	215
Others	31	28	34	42	37	42	48	82
European Companies	82	93	103	146	169	206	230	238
ASEA-Brown Boveri	1	1	3	4	5	6	8	9
Ericsson							2	
Philips	19	19	19	18	25	35	26	25
Plessey	3	3	3	7	10	16	17	22
Rifa						2		
Siemens	36	38	41	70	75	77	85	100
Telefunken Electronic	18	25	30	38	41	58	77	74
Thomson					4			
Others	5	7	7	9	9	12	15	8
Rest of World Companies		2	3	4	3	2	3	5
KEC		1	2	3	2	2	3	5
Others		1	1	1	1			

Source: Dataquest
July 1989

Final Market Share Estimates

NOTES TO MARKET SHARE TABLES

1. Beginning in 1986, revenue for Advanced Micro Devices (AMD) and Monolithic Memories Inc. (MMI) is combined under AMD.
2. Beginning in 1986, revenue for Fairchild and National Semiconductor is combined under National Semiconductor.
3. Beginning in 1986, revenue for SGS and Thomson is combined under SGS-Thomson.
4. Plessey revenue includes Ferranti revenue from 1987 onward.
5. Philips revenue includes Signetics revenue.
6. Beginning in 1986, GE, RCA, and Intersil revenue is consolidated as GE Solid State.
7. Beginning in 1986, revenue for Exel is included under Exar.
8. Beginning in 1986, revenue for Mostek is included under SGS-Thomson.
9. VQSI was formerly known as Varo.
10. ASEA Brown Boveri includes Brown Boveri revenue from 1987 onward.
11. Ericsson was known as Rifa prior to March 1, 1988.
12. Powerex revenue includes Westinghouse revenue from 1986 onward.

DATAQUEST RESEARCH INCORPORATED NEWSLETTER

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January 24, 1979

PRELIMINARY MARKET SHARE ESTIMATES OF LEADING DOMESTIC MERCHANT SEMICONDUCTOR SUPPLIERS

Summary

Preliminary estimates of semiconductor shipments by the 18 leading U.S. semiconductor suppliers in 1978 demonstrate a 24.2 percent growth over 1977 estimated shipments. These 18 U.S. semiconductor companies shipped 85.1 percent of the total semiconductor shipments by all U.S. semiconductor companies in 1977 and are estimated to have shipped a comparable percentage in 1978.

Preliminary market share estimates of the 11 leading IC and 10 leading discrete suppliers in 1978 show a 30.7 percent and a 11.8 percent increase over 1977 shipments respectively. In 1977, the 11 leading IC suppliers shipped 78.2 percent of the worldwide IC shipments by all U.S. IC suppliers while the 10 leading discrete suppliers shipped 78.5 percent of the worldwide shipments by all U.S. discrete suppliers. Note that discrete devices here include optoelectronics.

Preliminary market share estimates of the top 12 MOS suppliers in 1978 depict a 35.3 percent increase in their MOS shipments, over 1977 estimates. The MOS market segment showed the highest growth in the 1978 semiconductor marketplace. The 12 MOS market leaders in 1977 shipped 84.2 percent of the worldwide MOS shipments by all U.S. MOS suppliers.

Semiconductor Suppliers

Table 1 shows the preliminary ranking of the 18 leading U.S. semiconductor suppliers broken down into ICs, Discretes and Other. It is significant to note that Table 1 includes Optoelectronics under Discretes, unlike prior DATAQUEST market share estimates which separate the two. In addition, the "Other" category consists primarily of modules and hybrids.

DATAQUEST's Preliminary Appendix B, which is scheduled for publication in early February, will include preliminary shipment estimates by product type for all products for all companies covered in our annual Appendix B—Market Share Estimate Worksheets. The final revision of Appendix B is scheduled for publication in May.

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IC Suppliers

The preliminary estimates for the 1978 leading U.S. IC suppliers are shown in Table 2. Clearly, 1978 was a good year for IC growth as is exemplified by the 30.7 percent market share growth of the top 11 IC suppliers during 1977-1978. Note that Harris has moved from twelfth place among IC suppliers in 1977 to tenth place with a 41.7 percent increase in shipments. Due to this shift, we have included 11 IC suppliers in the analysis of Table 2.

Table 2 also singles out AMD, Harris, Intel, and Mostek as having greater than 40 percent annual growth in the IC market segment. AMD's 61.0 percent market growth in ICs has brought the company up to seventh place in 1978 from ninth place in 1977.

Discrete Suppliers

Table 3 shows the preliminary estimates for the 1978 leading U.S. discrete suppliers. Overall growth in the discrete area was not as good as in the IC area, as indicated by the 11.8 percent growth in shipments by the leading discrete suppliers. Hewlett-Packard and General Instrument had the highest annual growth in discretes with 55.8 percent and 37.5 percent growth respectively. Again, it is important to note that, unlike prior DATAQUEST market share estimates, the preliminary estimates in Table 3 include optoelectronics both for 1977 and 1978.

MOS Suppliers

Preliminary estimates for the 1978 leading U.S. MOS suppliers are shown in Table 4. The 35.3 percent growth in shipments by the 12 leading MOS suppliers marks the MOS market segment as the fastest growth segment in the semiconductor marketplace.

AMD, Intel, Mostek and National all had 1978 MOS revenues that were up at least 50 percent over 1977 levels. The two-way tie for fourth place in 1977 was broken in 1978 as National clearly established itself as the fourth largest U.S. MOS supplier in 1978. AMD's remarkable 91.9 percent growth in MOS shipments has placed the company eighth in 1978, up from eleventh place in 1977.

James F. Riley
Mary Ellen Hrouda
Daniel L. Klesken
Frederick L. Zieber

Table 1

PRELIMINARY ESTIMATES

1978 WORLDWIDE SHIPMENTS BY LEADING U.S. SEMICONDUCTOR SUPPLIERS
(Dollars in Millions)

	<u>ICs</u>	<u>Discretes</u> ¹	<u>Other</u> ²	<u>Total</u>
Texas Instruments	\$666	\$254	-	\$920
Motorola	318	351	\$11	680
National	325	45	51	421
Fairchild	275	105	-	380
Intel	300	0	-	300
RCA	127	113	-	240
Signetics	205	0	-	205
ITT	70	100	-	170
General Instrument	80	55	-	135
AMD	132	0	-	132
Mostek	120	0	-	120
General Electric	2	111	-	113
Harris	85	0	-	85
Hewlett-Packard	0	81	-	81
Rockwell	80	0	-	80
International Rectifier	0	70	-	70
Intersil	60	9	-	69
AMI	67	0	-	67

¹Includes optoelectronics²Consists primarily of hybrids and modulesSource: DATAQUEST, Inc.
January 1979

Table 2

PRELIMINARY ESTIMATES

1978 WORLDWIDE SHIPMENTS BY LEADING U.S. IC SUPPLIERS

(Dollars in Millions)

	<u>1977</u>	<u>1978</u>	<u>Annual Growth Percent</u>
Texas Instruments	\$ 518	\$ 666	28.6%
National	246	325	32.1%
Motorola	235	318	35.3%
Intel	207	300	44.9%
Fairchild	226	275	21.7%
Signetics	175	205	17.1%
AMD	82	132	61.0%
RCA	108	127	17.6%
Mostek	80	120	50.0%
Harris	60	85	41.7%
General Instrument	<u>77</u>	<u>80</u>	<u>3.9%</u>
Total Market Share of 11 Top Companies	\$2,014	\$2,633	30.7%

Source: DATAQUEST, Inc.
January 1979

Table 3

PRELIMINARY ESTIMATES

1978 WORLDWIDE SHIPMENTS BY LEADING U.S. DISCRETE SUPPLIERS¹
 (Dollars in Millions)

	<u>1977</u>	<u>1978</u>	<u>Annual Growth Percent</u>
Motorola	\$ 313	\$ 351	12.1%
Texas Instruments	227	254	11.9%
RCA	98	113	15.3%
General Electric	109	111	1.8%
Fairchild	99	105	6.1%
ITT	105	100	(4.8%)
Hewlett-Packard	52	81	55.8%
International Rectifier	64	70	9.4%
General Instrument	40	55	37.5%
National	<u>42</u>	<u>45</u>	<u>7.1%</u>
Total Market Share of 10 Top Companies	\$1,149	\$1,285	11.8%

¹Figures include Optoelectronics

Source: DATAQUEST, Inc.
January 1979

Table 4

PRELIMINARY ESTIMATES

1978 WORLDWIDE SHIPMENTS BY LEADING U.S. MOS SUPPLIERS

(Dollars in Millions)

	<u>1977</u>	<u>1978</u>	<u>Annual Growth Percent</u>
Intel	\$ 192	\$ 300	56.3%
Texas Instruments	180	240	33.3%
Motorola	110	143	30.0%
National	80	130	62.5%
Mostek	80	120	50.0%
General Instrument	72	75	4.2%
Rockwell	59	80	35.6%
AMD	37	71	91.9%
RCA	61	69	13.1%
AMI	71	67	(5.6%)
Fairchild	58	60	3.4%
Signetics	<u>25</u>	<u>32</u>	<u>28.0%</u>
Total Market Share of 12 Companies	\$1,025	\$1,387	35.3%

Source: DATAQUEST, Inc.
January 1979

SIS Code: Vol. III, Appendix B

PRELIMINARY MARKET SHARE ESTIMATES OF U.S. AND EUROPEAN MERCHANT SEMICONDUCTOR SUPPLIERS

Summary

DATAQUEST's preliminary 1979 estimates of semiconductor shipments by the 22 leading U.S. and European semiconductor suppliers (shown in Table 1) reveal a 33.6 percent growth over estimated shipments for 1978. Estimates of Japanese companies' shipments are not yet available, and are not included in this table. The 18 U.S. semiconductor companies accounted for 85.1 percent of the total U.S. semiconductor shipments in both 1977 and 1978 and are estimated to have shipped a comparable percentage in 1979.

Preliminary estimates for the 13 leading IC and discrete suppliers in 1979 demonstrate a 39.7 percent and a 16.0 percent increase, respectively, over the value of 1978 shipments. DATAQUEST's 1978 IC shipment estimates show the 11 leading U.S. IC suppliers to have 81.9 percent of the worldwide IC shipments by all U.S. IC suppliers, up from a 78.2 percent market share in 1977. Although the number of total 1979 shipments is not yet available, we estimate that these 11 companies have shipped about four-fifths of the total IC's shipped by U.S. companies. The 10 leading U.S. discrete suppliers are estimated to have shipped 79.8 percent of the 1978 worldwide shipments by all U.S. discrete suppliers, up from 78.5 percent in 1977. Note that discrete devices here include optoelectronics.

Preliminary revenue estimates of the top 14 U.S. MOS suppliers in 1979 exhibit a 51.5 percent growth in MOS shipments over 1978 estimates. Again, the MOS market segment showed the highest growth in the semiconductor marketplace. In 1978, the 14 U.S. MOS market leaders shipped 92.7 percent of the worldwide shipments by all U.S. MOS suppliers, up from an 84.2 percent market share in 1977. Their collective market share for 1979 is expected to grow slightly over their 1978 market share. At this time, we have no preliminary MOS revenue estimates for the European companies. However, the final version of Appendix B will have a more complete breakdown for European IC suppliers.

Semiconductor Suppliers

Table 1 presents the preliminary ranking of the 22 leading U.S. and European semiconductor suppliers broken down into ICs, Discretes, and Other. Please note that Table 1 includes Optoelectronics under Discretes, unlike the DATAQUEST Appendix B Market Share Estimates notebook section which separates the two. The "Other" category consists primarily of modules and hybrids.

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DATAQUEST's Preliminary Appendix B, which is scheduled for a January publication, will include preliminary shipment estimates by product type for all products for all companies covered in our annual Appendix B - Market Share Estimate Worksheets. The final revision of Appendix B is scheduled for publication in May.

It is significant to note that in the preliminary ranking, two of the top seven semiconductor suppliers are European companies, namely, Philips and Siemens. (In Japan, Hitachi and NEC are of comparable size.)

IC Suppliers

The preliminary DATAQUEST estimates for the 1979 leading U.S. and European IC suppliers are shown in Table 2. It is obvious in the 39.7 percent market share increase of the top U.S. And European IC suppliers' revenues that 1979 was a good year for IC growth. Texas Instruments was the leading merchant IC manufacturer, shipping an estimated \$925 million in 1979. Motorola, National and Philips are in close rank for second place among IC suppliers at about \$500 million each. However, one should note that in Table 2 the IC estimates for National and Motorola do not include estimates for hybrids and modules, which are \$40 million and \$10 million respectively.

Table 2 demonstrates remarkable growth in the IC marketplace for all the listed companies. However, AMD, Mostek, and Motorola, in particular, stand out as having annual growths above 50 percent. Mostek's outstanding 68.0 percent growth has placed it eighth among U.S. IC suppliers with AMD not far behind with its 57.6 percent growth in ICs. Also, Motorola's 50.8 percent growth has moved it into a tight third place ranking behind Texas Instruments and National.

Discrete Suppliers

Table 3 shows the preliminary estimates for the 13 leading U.S. and European discrete suppliers in 1979. Overall growth in the 1979 discrete marketplace is reflected in the 16.0 percent growth in shipments of the 13 leading U.S. and European discrete suppliers. For General Instrument, this includes revenues of the optoelectronics division acquired in 1979 from Monsanto for both 1978 and 1979 (\$27 million and \$33 million, respectively). General Instrument and National both exhibited a healthy 30 percent growth in discretetes.

MOS Suppliers

Preliminary estimates for the 1979 leading U.S. MOS suppliers are shown in Table 4. The high demand for MOS devices in 1979 is reflected in the 51.5 percent over 1978 MOS shipments by the 14 leading U.S. MOS suppliers. Clearly, this growth marks the MOS market segment once again as the fastest growth segment in the semiconductor marketplace.

AMD, Fairchild, Mostek, Motorola, National, and Synertek all exhibit 1979 preliminary MOS revenue estimates that are up at least 51.0 percent over 1978 levels. Motorola and National stand out with their remarkable 88.1 percent and 84.6 percent growths, respectively. Mostek grew next fastest at 68.0 percent. Fairchild has moved into a tie with RCA for tenth place among U.S. MOS suppliers due to its healthy 56.9 percent increase in MOS revenues in 1979. It is also significant to note that Synertek has joined the leading 12 U.S. MOS suppliers with a 51.5 percent MOS growth.

Mary Ellen Hrouda
James F. Riley
Daniel L. Klesken

Table 1

PRELIMINARY ESTIMATES
1979 WORLDWIDE SHIPMENTS BY LEADING U.S. AND EUROPEAN SEMICONDUCTOR SUPPLIERS
(Millions of Dollars)

	<u>ICs</u>	<u>Discretes</u> ¹	<u>Other</u> ²	<u>Total</u>
Texas Instruments	\$925	\$285	-	\$1,210
Motorola	\$496	\$424	\$10	\$ 920
Philips (including Signetics)	\$490	\$290	-	\$ 780
National	\$515	\$ 65	\$40	\$ 620
Fairchild	\$330	\$120	\$20	\$ 470
Intel	\$430	-	-	\$ 430
Siemens	\$150	\$260	-	\$ 410
RCA	\$155	\$115	-	\$ 270
Signetics	\$250	-	-	\$ 250
Mostek	\$210	-	-	\$ 210
AMD	\$208	-	-	\$ 208
General Instrument ³	\$ 90	\$100	\$ 6	\$ 196
ITT	\$ 85	\$100	-	\$ 185
Sescom	\$ 40	\$120	-	\$ 160
General Electric	\$ 3	\$126	-	\$ 129
AEG-Telefunken	\$ 40	\$ 85	-	\$ 125
Harris	\$115	-	-	\$ 115
AMI	\$ 95	-	-	\$ 95
Intersil	\$ 85	\$ 7	-	\$ 92
Hewlett-Packard	See Note 4	\$ 85	-	\$ 85
International Rectifier	-	\$ 78	-	\$ 78
Rockwell	\$ 70	-	-	\$ 70

¹Includes Optoelectronics

²Consists primarily of hybrids and modules

³Includes Optoelectronics Division, formerly Monsanto, having estimated 1979 revenues of \$33 million

⁴For Hewlett-Packard, captive IC production is not counted

Source: DATAQUEST, Inc.
December 1979

Table 2
PRELIMINARY ESTIMATES
WORLDWIDE SHIPMENTS BY LEADING U.S. AND EUROPEAN IC SUPPLIERS
(Millions of Dollars)

	<u>1978</u>	<u>1979</u>	<u>Annual Growth Percent</u>
Texas Instruments	\$ 669	\$ 925	38.3%
National	370	515	39.2
Motorola	329	496	50.8
Philips (including Signetics)	375	490	30.7
Intel	300	430	43.3
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RCA	127	155	22.0
Siemens	108	150	38.9
Harris	85	115	35.3
General Instrument	<u>75</u>	<u>96</u>	28.0
Total IC Shipments of 13 Leading Companies	\$2,950	\$4,120	39.7%

Source: DATAQUEST, Inc.
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Table 3

PRELIMINARY ESTIMATES
1979 WORLDWIDE SHIPMENTS BY LEADING U.S. AND EUROPEAN DISCRETE SUPPLIERS¹
(Millions of Dollars)

	<u>1978</u>	<u>1979</u>	<u>Annual Growth Percent</u>
Motorola	\$ 351	\$ 427	21.7%
Philips	266	290	9.0
Texas Instruments	254	285	12.2
Siemens ²	208	260	25.0
Fairchild	125	140	12.0
General Electric	111	126	13.5
Sescosem	100	120	20.0
RCA	113	115	1.8
ITT	95	100	5.3
General Instrument ³	77	100	29.9
Hewlett-Packard	69	85	23.2
International Rectifier	70	78	11.4
National Semiconductor	<u>50</u>	<u>65</u>	30.0
Total Discretes Shipments of 13 Leading Companies	\$1,889	\$2,191	16.0%

¹ Figures Include Optoelectronics

² Includes Litronix revenues of \$21 million for 1978 and \$36 million for 1979

³ Monsanto Optoelectronics, purchased by General Instrument in June 1979, is now included for both 1978 and 1979. Estimated revenues for Optoelectronics were \$27 million and \$33 million for those years.

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Rockwell	52	70	34.6
Synertek	33	50	51.5
Intersil	35	45	28.6
Signetics	<u>32</u>	<u>35</u>	9.4
Total MOS Shipments of Above Companies	\$1,401	\$2,122	51.5%

Source: DATAQUEST, Inc.
December 1979

DATAQUEST RESEARCH NEWSLETTER

A Subsidiary of A.C. Nielsen Co. INCORPORATED

SIS Code: Vol. III, Appendix B

PRELIMINARY MARKET SHARE ESTIMATES OF U.S. AND EUROPEAN MERCHANT SEMICONDUCTOR SUPPLIERS

Summary

DATAQUEST's preliminary 1979 estimates of semiconductor shipments by the 22 leading U.S. and European semiconductor suppliers (shown in Table 1) reveal a 33.6 percent growth over estimated shipments for 1978. Estimates of Japanese companies' shipments are not yet available, and are not included in this table. The 18 U.S. semiconductor companies accounted for 85.1 percent of the total U.S. semiconductor shipments in both 1977 and 1978 and are estimated to have shipped a comparable percentage in 1979.

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December 1979

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Appendix B—Market Share Estimate Worksheets

- Relevant projected world economic data

Most estimates have been reviewed by knowledgeable market research analysts from several of the major industry participants, and revisions were made if justified by the additional data that they provided. Thus, these estimates represent a reasonably good consensus of the industry's own estimates.

CONSISTENCY

One of the key objectives in preparing these estimates has been to achieve consistency among the various data elements that constitute the forecast and the past database. The opportunity to check the numeric value of a directly obtained data element by deriving it indirectly from other data elements through one or more alternative means has been of great assistance in assuring the accuracy and consistency of the estimates. Thus the data in Appendix B are consistent with the market estimates in Appendix A, with the individual company revenue breakdowns presented in Chapters 8, 9, 10, and 11, and with the summary tables presented in the "Markets" chapter.

ACCURACY

The tables presented here represent estimates by DATAQUEST, which we believe are reasonably accurate. Accordingly where we have no accurate estimate, one is not given. A blank space in a table indicates the unavailability of a reasonably accurate estimate, while a zero in a table represents an estimate.

NEED FOR CAREFUL INTERPRETATION

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, we offer two caveats regarding the interpretation of the estimates presented in the tables:

- The detailed definitions of basis we have used may differ from those used in other studies of this type. Our basis is the same as that used by WEMA, but is different from that used by many companies.
- Certain assumptions or conventions implicit in our forecast may differ from those of others. For example, our assumptions of currency values may be different from those actually in effect at a particular time.

SIS Code: Vol. III, Appendix B

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Semiconductor Suppliers

Table 1 presents the preliminary ranking of the 22 leading U.S. and European semiconductor suppliers broken down into ICs, Discretes, and Other. Please note that Table 1 includes Optoelectronics under Discretes, unlike the DATAQUEST Appendix B Market Share Estimates notebook section which separates the two. The "Other" category consists primarily of modules and hybrids.

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Discrete Suppliers

Table 3 shows the preliminary estimates for the 13 leading U.S. and European discrete suppliers in 1979. Overall growth in the 1979 discrete marketplace is reflected in the 16.0 percent growth in shipments of the 13 leading U.S. and European discrete suppliers. For General Instrument, this includes revenues of the optoelectronics division acquired in 1979 from Monsanto for both 1978 and 1979 (\$27 million and \$33 million, respectively). General Instrument and National both exhibited a healthy 30 percent growth in discretetes.

MOS Suppliers

Preliminary estimates for the 1979 leading U.S. MOS suppliers are shown in Table 4. The high demand for MOS devices in 1979 is reflected in the 51.5 percent over 1978 MOS shipments by the 14 leading U.S. MOS suppliers. Clearly, this growth marks the MOS market segment once again as the fastest growth segment in the semiconductor marketplace.

AMD, Fairchild, Mostek, Motorola, National, and Synertek all exhibit 1979 preliminary MOS revenue estimates that are up at least 51.0 percent over 1978 levels. Motorola and National stand out with their remarkable 88.1 percent and 84.6 percent growths, respectively. Mostek grew next fastest at 68.0 percent. Fairchild has moved into a tie with RCA for tenth place among U.S. MOS suppliers due to its healthy 56.9 percent increase in MOS revenues in 1979. It is also significant to note that Synertek has joined the leading 12 U.S. MOS suppliers with a 51.5 percent MOS growth.

Mary Ellen Hrouda
James F. Riley
Daniel L. Klesken

Table 1

PRELIMINARY ESTIMATES
1979 WORLDWIDE SHIPMENTS BY LEADING U.S. AND EUROPEAN SEMICONDUCTOR SUPPLIERS
(Millions of Dollars)

	<u>ICs</u>	<u>Discretes</u> ¹	<u>Other</u> ²	<u>Total</u>
Texas Instruments	\$925	\$285	-	\$1,210
Motorola	\$496	\$424	\$10	\$ 920
Philips (including Signetics)	\$490	\$290	-	\$ 780
National	\$515	\$ 65	\$40	\$ 620
Fairchild	\$330	\$120	\$20	\$ 470
Intel	\$430	-	-	\$ 430
Siemens	\$150	\$260	-	\$ 410
RCA	\$155	\$115	-	\$ 270
Signetics	\$250	-	-	\$ 250
Mostek	\$210	-	-	\$ 210
AMD	\$208	-	-	\$ 208
General Instrument ³	\$ 90	\$100	\$ 6	\$ 196
ITT	\$ 85	\$100	-	\$ 185
Sescosem	\$ 40	\$120	-	\$ 160
General Electric	\$ 3	\$126	-	\$ 129
AEG-Telefunken	\$ 40	\$ 85	-	\$ 125
Harris	\$115	-	-	\$ 115
AMI	\$ 95	-	-	\$ 95
Intersil	\$ 85	\$ 7	-	\$ 92
Hewlett-Packard	See Note 4	\$ 85	-	\$ 85
International Rectifier	-	\$ 78	-	\$ 78
Rockwell	\$ 70	-	-	\$ 70

¹Includes Optoelectronics

²Consists primarily of hybrids and modules

³Includes Optoelectronics Division, formerly Monsanto, having estimated 1979 revenues of \$33 million

⁴For Hewlett-Packard, captive IC production is not counted

Source: DATAQUEST, Inc.
December 1979

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WORLDWIDE SHIPMENTS BY LEADING U.S. AND EUROPEAN IC SUPPLIERS
(Millions of Dollars)**

	<u>1978</u>	<u>1979</u>	<u>Annual Growth Percent</u>
Texas Instruments	\$ 669	\$ 925	38.3%
National	370	515	39.2
Motorola	329	496	50.8
Philips (including Signetics)	375	490	30.7
Intel	300	430	43.3
Fairchild	255	330	29.4
Signetics	205	250	22.0
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RCA	127	155	22.0
Siemens	108	150	38.9
Harris	85	115	35.3
General Instrument	<u>75</u>	<u>96</u>	28.0
Total IC Shipments of 13 Leading Companies	\$2,950	\$4,120	39.7%

Source: DATAQUEST, Inc.
December 1979

Table 3

PRELIMINARY ESTIMATES
1979 WORLDWIDE SHIPMENTS BY LEADING U.S. AND EUROPEAN DISCRETE SUPPLIERS¹
(Millions of Dollars)

	<u>1978</u>	<u>1979</u>	<u>Annual Growth Percent</u>
Motorola	\$ 351	\$ 427	21.7%
Philips	266	290	9.0
Texas Instruments	254	285	12.2
Siemens ²	208	260	25.0
Fairchild	125	140	12.0
General Electric	111	126	13.5
Sescosem	100	120	20.0
RCA	113	115	1.8
ITT	95	100	5.3
General Instrument ³	77	100	29.9
Hewlett-Packard	69	85	23.2
International Rectifier	70	78	11.4
National Semiconductor	<u>50</u>	<u>65</u>	30.0
Total Discretes Shipments of 13 Leading Companies	\$1,889	\$2,191	16.0%

¹ Figures Include Optoelectronics

² Includes Litronix revenues of
\$21 million for 1978 and \$36 million
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General Instrument in June 1979, is now
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and \$33 million for those years.

Source: DATAQUEST, Inc.
December 1979

Table 4

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	<u>1978</u>	<u>1979</u>	<u>Annual Growth Percent</u>
Intel	\$ 283	\$ 408	44.2%
Texas Instruments	238	340	42.9
Motorola	143	269	88.1
National	130	240	84.6
Mostek	125	210	68.0
AMD	71	110	54.9
AMI	71	95	33.8
General Instrument	68	90	32.4
Fairchild	51	80	56.9
RCA	69	80	15.9
Rockwell	52	70	34.6
Synertek	33	50	51.5
Intersil	35	45	28.6
Signetics	<u>32</u>	<u>35</u>	9.4
Total MOS Shipments of Above Companies	\$1,401	\$2,122	51.5%

Source: DATAQUEST, Inc.
December 1979

Appendix B—Market Share Estimate Worksheets

- **Relevant projected world economic data**

Most estimates have been reviewed by knowledgeable market research analysts from several of the major industry participants, and revisions were made if justified by the additional data that they provided. Thus, these estimates represent a reasonably good consensus of the industry's own estimates.

CONSISTENCY

One of the key objectives in preparing these estimates has been to achieve consistency among the various data elements that constitute the forecast and the past database. The opportunity to check the numeric value of a directly obtained data element by deriving it indirectly from other data elements through one or more alternative means has been of great assistance in assuring the accuracy and consistency of the estimates. Thus the data in Appendix B are consistent with the market estimates in Appendix A, with the individual company revenue breakdowns presented in Chapters 8, 9, 10, and 11, and with the summary tables presented in the "Markets" chapter.

ACCURACY

The tables presented here represent estimates by DATAQUEST, which we believe are reasonably accurate. Accordingly where we have no accurate estimate, one is not given. A blank space in a table indicates the unavailability of a reasonably accurate estimate, while a zero in a table represents an estimate.

NEED FOR CAREFUL INTERPRETATION

Despite the care taken in gathering and analyzing the available data and in attempting to categorize those data in a meaningful way, we offer two caveats regarding the interpretation of the estimates presented in the tables:

- The detailed definitions of basis we have used may differ from those used in other studies of this type. Our basis is the same as that used by WEMA, but is different from that used by many companies.
- Certain assumptions or conventions implicit in our forecast may differ from those of others. For example, our assumptions of currency values may be different from those actually in effect at a particular time.

SIS Code: Vol. III, Appendix B

PRELIMINARY MARKET SHARE ESTIMATES OF U.S. AND EUROPEAN MERCHANT SEMICONDUCTOR SUPPLIERS

Summary

DATAQUEST's preliminary 1979 estimates of semiconductor shipments by the 22 leading U.S. and European semiconductor suppliers (shown in Table 1) reveal a 33.6 percent growth over estimated shipments for 1978. Estimates of Japanese companies' shipments are not yet available, and are not included in this table. The 18 U.S. semiconductor companies accounted for 85.1 percent of the total U.S. semiconductor shipments in both 1977 and 1978 and are estimated to have shipped a comparable percentage in 1979.

Preliminary estimates for the 13 leading IC and discrete suppliers in 1979 demonstrate a 39.7 percent and a 16.0 percent increase, respectively, over the value of 1978 shipments. DATAQUEST's 1978 IC shipment estimates show the 11 leading U.S. IC suppliers to have 81.9 percent of the worldwide IC shipments by all U.S. IC suppliers, up from a 78.2 percent market share in 1977. Although the number of total 1979 shipments is not yet available, we estimate that these 11 companies have shipped about four-fifths of the total IC's shipped by U.S. companies. The 10 leading U.S. discrete suppliers are estimated to have shipped 79.8 percent of the 1978 worldwide shipments by all U.S. discrete suppliers, up from 78.5 percent in 1977. Note that discrete devices here include optoelectronics.

Preliminary revenue estimates of the top 14 U.S. MOS suppliers in 1979 exhibit a 51.5 percent growth in MOS shipments over 1978 estimates. Again, the MOS market segment showed the highest growth in the semiconductor marketplace. In 1978, the 14 U.S. MOS market leaders shipped 92.7 percent of the worldwide shipments by all U.S. MOS suppliers, up from an 84.2 percent market share in 1977. Their collective market share for 1979 is expected to grow slightly over their 1978 market share. At this time, we have no preliminary MOS revenue estimates for the European companies. However, the final version of Appendix B will have a more complete breakdown for European IC suppliers.

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December 1979

SIS Code: Appendix B

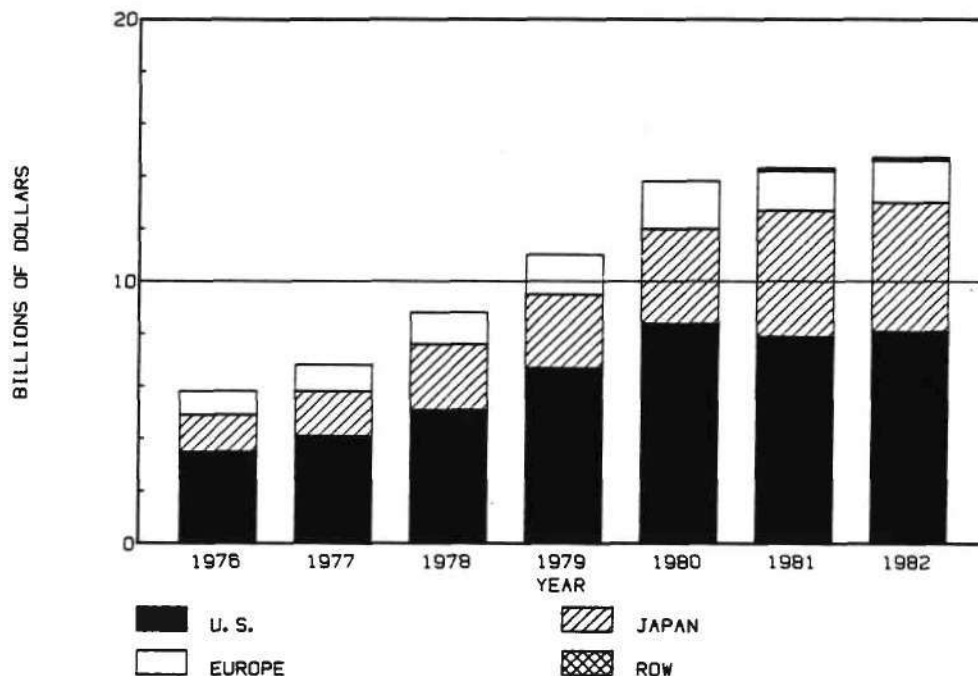
APPENDIX B - MARKET SHARE ESTIMATES

SUMMARY

DATAQUEST estimates that revenue from worldwide semiconductor shipments grew at a compound annual growth rate (CAGR) of 16.7 percent, between 1976 and 1982. By regional company base, U.S. and European-based companies experienced below average growth, at 14.9 percent and 11.2 percent, respectively, while Japanese and rest of world (ROW)-based companies growth exceeded the industry average, with 23.0 percent and 26.9 percent, (CAGR) respectively. Figure 1 illustrates actual shipment values of semiconductors, by geographic region.

Figure 1

TOTAL SEMICONDUCTOR SHIPMENTS (Billions of Dollars)



Source: DATAQUEST

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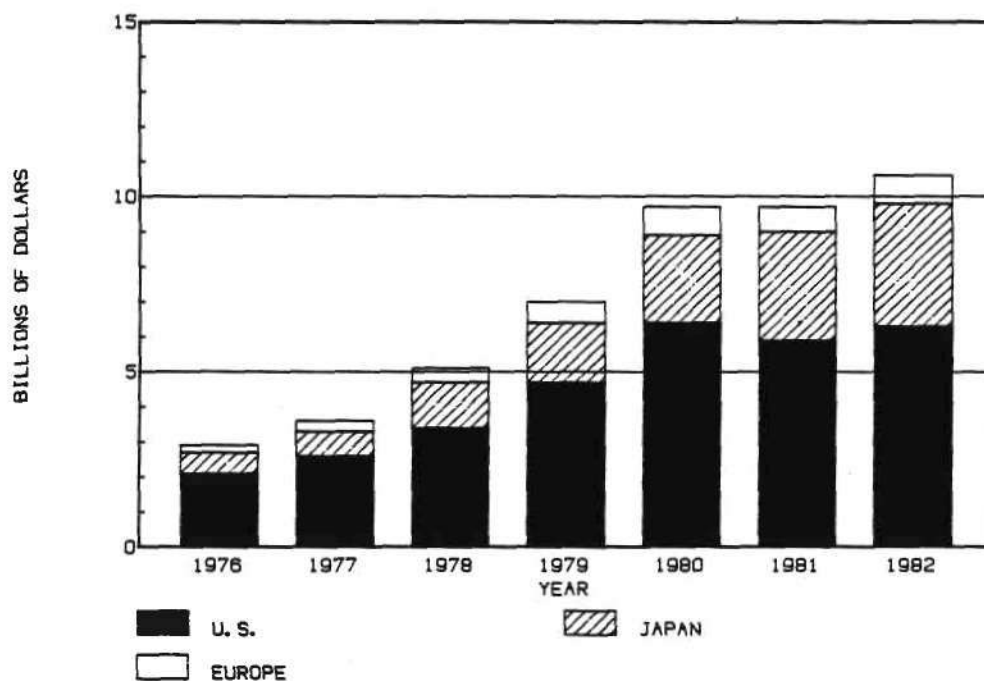
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WORLDWIDE INTEGRATED CIRCUIT SHIPMENT ESTIMATES

Between 1976 and 1982, DATAQUEST estimates that the revenue from worldwide integrated circuits market grew at a CAGR of 23.7 percent. Japanese companies grew the fastest, with a 33.5 percent CAGR. U.S. and European companies grew slightly below the norm, at 20.3 percent and 21.1 percent, respectively. The ROW companies are becoming more significant in the market; however, they represent less than 1 percent of the integrated circuit market. For details on shipments of integrated circuits by region, refer to Figure 2.

Figure 2

TOTAL INTEGRATED CIRCUIT SHIPMENTS (Billions of Dollars)



Source: DATAQUEST

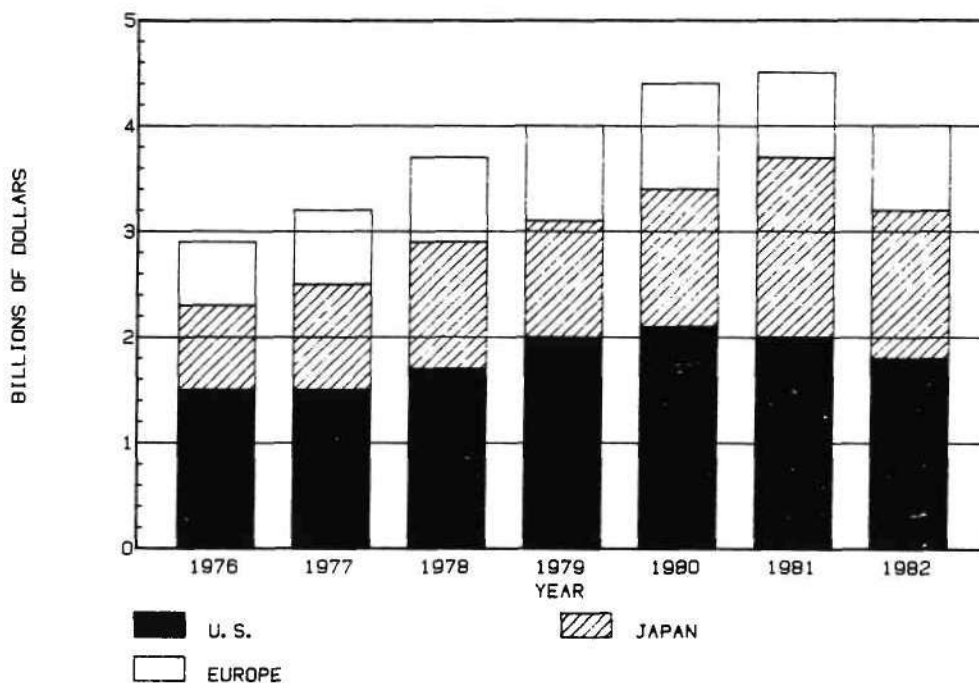
The Appendix B service section breaks the integrated circuit market into three major segments: bipolar, MOS, and linear. Bipolar and MOS categories are further segmented by technology and function (i.e., memory, microprocessor, and/or logic). The linear category is not presently defined by function, but it is expected to be identified in the near future.

WORLDWIDE DISCRETE/OPTOELECTRONICS SHIPMENT ESTIMATES

Figure 3 illustrates DATAQUEST estimates of worldwide discrete and optoelectronics revenues by region. These two markets combined grew at a CAGR of 5.7 percent between 1976 and 1982. The Japanese market share increased significantly during this time, growing 10.7 percent. Europe grew at a CAGR of 5.1 percent, and the United States grew less dramatically at 2.5 percent.

Figure 3

TOTAL DISCRETE/OPTOELECTRONIC SHIPMENTS (Billions of Dollars)



Source: DATAQUEST

1982 APPENDIX B CHANGES

DATAQUEST has added several companies to the Appendix B, market share analysis. We presently cover more than 70 companies worldwide. Approximately 52 of these companies are U.S.-based, 11 are European-based, and 9 are Japanese-based. The 1982 additions to our market share study include Acrian, Micron Technology, Micro Power Systems, Silicon Systems, and VLSI Technology in the United States; Sharp and Oki in Japan; and ASEA-HAFO, INMOS, Matra-Harris, and Semikron in Europe.

Figure 4 shows a complete listing of the tables that appear in the Appendix B service section, located in Volume III of the Semiconductor Industry Service. For details on these market share tables, dated 1975 through 1982, please contact your SIS notebook holder.

Barbara A. Van

Figure 4
INDEX OF TABLES

<u>Title</u>	<u>Table</u>
Japanese Exchange Rates	B-0
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital (Technology)	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
Bipolar Digital (Function) - Same as B-3	B-8
Memory	B-9
Logic	B-10
MOS (Technology)	B-11
PMOS	B-12
NMOS	B-13
CMOS	B-14
MOS (Function) - Same as B-11	B-15
Memory	B-16
Microprocessor	B-17
Logic	B-18
Linear	B-19
Amplifiers	B-20
Voltage Regulators	B-21
Data Conversion	B-22
Interface	B-23

Source: DATAQUEST

SIS Code: Vol. III, Appendix B

SEMICONDUCTOR REVENUES OF RECENT START-UPS**SUMMARY**

Within the past four years, there have emerged many new semiconductor companies. Twenty-two of these start-ups that had wafer fab were discussed in a DATAQUEST newsletter, "Semiconductor Start-Ups Since 1977," dated 29 March 1982. Several dozen more start-ups, which have design capabilities but not wafer fab, have also begun operations.

Among those start-ups with wafer fab, there exists a wide variation in level of capitalization, product focus, technical approaches, and importantly, the market environment in which they have operated during the last two years. As a result, there has also been a wide variation in the speed with which these firms have been able to increase their revenues in their first few production years. Well-funded manufacturers selling into familiar, established, or rapid-growth markets have been able to generate large revenues quickly; companies which have positioned themselves in service-oriented markets or developing markets have found it more difficult to generate such large revenue growth.

Two manufacturers, INMOS and VLSI Technology (VTI), have shown exceptional growth so far and are already significant participants in their respective markets. For these companies, and several others of those listed, 1983 could possibly see a doubling or tripling of revenues.

Table 1 contains DATAQUEST's estimates of the semiconductor revenues of 18 recent start-ups for the years 1980 through 1982. Also shown are the products that these companies currently offer. In this list we have included only those new operations having wafer fab. A follow-on newsletter is now in progress, "Start-Up Companies Update: Progress, Strategies, and Prospects," in which each of these companies will be discussed more fully, as will a number of important start-ups that do not now incorporate wafer fab.

Lane Mason
Mary Ellen Wetlesen

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Table 1

**ESTIMATED SEMICONDUCTOR REVENUES OF
RECENT START-UPS
(Millions of Dollars)**

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>Present Products/Services</u>
Acrian	NP	2.0	10.0*	RF/Microwave Power Devices
Applied Micro Circuits (AMCC)	0.6	1.5	2.5	Bipolar, CMOS Gate Arrays
California Devices (CDI)	1.1	2.5	6.5	CMOS Gate Arrays
Comdial Semiconductor (CSI)	0.1	0.2	1.8	Foundry, "quick turn" fab
Eurotechnique	0.0	3.0	12.0	MOS Memory, MPU
Integrated Device Technology (IDT)	NP	0.2	3.0	CMOS SRAMs
INMOS	0.0	4.0	26.0	NMOS SRAM, DRAM
International Microelectronic Products (IMP)		NP	4.5	Custom Design, Foundry, ROMs
LSI Logic	NP	0.2	6.0	CMOS and ECL Gate Arrays
Matra-Harris	NP	3.5	13.5	MOS Memory, MPU
Micro Circuit Engineering (MCE)	4.0	10.0	13.0	Custom Design, Foundry
Micron Technology	NP	0.6	4.5	DRAM, Image Sensor
SEEQ Technology		NP	0.2	EEPROMs, EPROMs
Senitron	NP	0.5	4.5	Mature PMOS Processes, CMOS
Silicon Systems Inc. (SSI)	10.5	12.0	16.0	Custom, Foundry
VLSI Technology (VTI)		NP	21.5	ROMs, Custom, Foundry
Xicor	0.1	0.3	3.5	NVRAMs, EEPROMs, ROMs
Zymos	1.5	7.5	10.5	Custom, Foundry

NP = No production: "0" = Less than \$0.05 million product revenues

*Prior to the end of 1982, Acrian purchased CTC from Varian, Inc., effectively doubling their revenues from the 1982 estimate of \$10 million listed here.

Source: DATAQUEST
January 1983



RESEARCH NEWSLETTER

SIS Code: Vol. III, Appendix B

SEMICONDUCTOR REVENUES OF RECENT START-UPS

SUMMARY

Within the past four years, there have emerged many new semiconductor companies. Twenty-two of these start-ups that had wafer fab were discussed in a DATAQUEST newsletter, "Semiconductor Start-Ups Since 1977," dated 29 March 1982. Several dozen more start-ups, which have design capabilities but not wafer fab, have also begun operations.

Among those start-ups with wafer fab, there exists a wide variation in level of capitalization, product focus, technical approaches, and importantly, the market environment in which they have operated during the last two years. As a result, there has also been a wide variation in the speed with which these firms have been able to increase their revenues in their first few production years. Well-funded manufacturers selling into familiar, established, or rapid-growth markets have been able to generate large revenues quickly; companies which have positioned themselves in service-oriented markets or developing markets have found it more difficult to generate such large revenue growth.

Two manufacturers, INMOS and VLSI Technology (VTI), have shown exceptional growth so far and are already significant participants in their respective markets. For these companies, and several others of those listed, 1983 could possibly see a doubling or tripling of revenues.

Table 1 contains DATAQUEST's estimates of the semiconductor revenues of 18 recent start-ups for the years 1980 through 1982. Also shown are the products that these companies currently offer. In this list we have included only those new operations having wafer fab. A follow-on newsletter is now in progress, "Start-Up Companies Update: Progress, Strategies, and Prospects," in which each of these companies will be discussed more fully, as will a number of important start-ups that do not now incorporate wafer fab.

Lane Mason
Mary Ellen Wetlesen

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Table 1

ESTIMATED SEMICONDUCTOR REVENUES OF
RECENT START-UPS
(Millions of Dollars)

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>Present Products/Services</u>
Acrian	NP	2.0	10.0*	RF/Microwave Power Devices
Applied Micro Circuits (AMCC)	0.6	1.5	2.5	Bipolar, CMOS Gate Arrays
California Devices (CDI)	1.1	2.5	6.5	CMOS Gate Arrays
Comdial Semiconductor (CSI)	0.1	0.2	1.8	Foundry, "quick turn" fab
Eurotechnique	0.0	3.0	12.0	MOS Memory, MPU
Integrated Device Technology (IDT)	NP	0.2	3.0	CMOS SRAMs
IMMOS	0.0	4.0	26.0	HMOS SRAM, DRAM
International Microelectronic Products (IMP)		NP	4.5	Custom Design, Foundry, ROMs
LSI Logic	NP	0.2	6.0	CMOS and ECL Gate Arrays
Matra-Harris	NP	3.5	13.5	MOS Memory, MPU
Micro Circuit Engineering (MCE)	4.0	10.0	13.0	Custom Design, Foundry
Micron Technology	NP	0.6	4.5	DRAM, Image Sensor
SEEQ Technology		NP	0.2	EEPROMs, EPROMs
Semitron	NP	0.5	4.5	Mature PMOS Processes, CMOS
Silicon Systems Inc. (SSI)	10.5	12.0	16.0	Custom, Foundry
VLSI Technology (VTI)		NP	21.5	ROMs, Custom, Foundry
Xicor	0.1	0.3	3.5	NVRAMs, EEPROMs, ROMs
Zymos	1.5	7.5	10.5	Custom, Foundry

NP = No production: "0" = Less than \$0.05 million product revenues

*Prior to the end of 1982, Acrian purchased CTC from Varian, Inc., effectively doubling their revenues from the 1982 estimate of \$10 million listed here.

Source: DATAQUEST
January 1983



SIS Code: Vol. III, Appendix B

PRELIMINARY 1982 WORLDWIDE SEMICONDUCTOR MARKET SHARE ESTIMATES

SUMMARY

DATAQUEST estimates that in 1982:

- Worldwide merchant market semiconductor consumption increased 2.6 percent over 1981, measured in U.S. dollars.
- Worldwide shipments of Japanese suppliers declined 0.4 percent.
- Worldwide shipments by U.S. and West European suppliers increased 0.9 percent.

Despite these poor results, some companies grew significantly because of good product positioning in specific areas. MOS memory, which suffered badly in 1981, grew 23 percent in 1982. Japanese supplier shipments of MOS memory grew by an estimated 35 percent, whereas U.S. and West European supplier shipments of MOS memory grew only 18 percent.

This newsletter presents our preliminary revenue estimates for the major semiconductor suppliers. DATAQUEST is preparing a newsletter for publication later in January, which analyzes the 1981 and 1982 performance of the start-up and other smaller semiconductor companies.

1982 WORLDWIDE SEMICONDUCTOR CONSUMPTION

Worldwide semiconductor merchant market consumption in 1982 grew an estimated 2.6 percent, with integrated circuits growing 7.2 percent, discrete devices declining 8.5 percent, and optoelectronics declining 1.4 percent. Table 1 shows the 1981 and 1982 worldwide merchant market semiconductor consumption by major product category, and shows the year-to-year percentage change.

The MOS digital integrated circuits market was the strongest product category in 1982. Its estimated 12.5 percent growth was due largely to the strength of MOS memory, which grew 23 percent from \$2,080 million in 1981 to \$2,550 million in 1982. The 64K dynamic RAMs, high-density EPROMs, and ROMs were the major

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growth segments within MOS memory. Consumption of bipolar digital integrated circuits grew 5.6 percent, while consumption of linear integrated circuits declined 0.4 percent.

WORLDWIDE SEMICONDUCTOR MARKET SHARES

Although worldwide merchant market semiconductor consumption grew 2.6 percent, Japanese semiconductor companies' shipments declined 0.4 percent. Japanese shipments as measured in Japanese yen actually increased by 11.8 percent between 1981 and 1982, but the strength of the U.S. dollar versus the Japanese yen caused an 11 percent decline in the Japanese results when measured in U.S. dollars. The exchange rates used in our calculations are 221 yen per U.S. dollar for 1981, and 248 yen per U.S. dollar in 1982. Table 2 presents the estimated percent change in 1982 revenues versus 1981 revenues for Japanese suppliers and U.S. and West European suppliers, by major product category.

For 1982 versus 1981, worldwide shipments of integrated circuits by Japanese suppliers increased 10.2 percent, a very good performance given the strength of the U.S. dollar in 1982. Bipolar digital integrated circuits increased by approximately 22 percent and MOS ICs increased an estimated 20 percent, whereas linear integrated circuits decreased 7 percent. Japanese companies' shipments of MOS memory increased 35 percent. The strong growth in Japanese MOS memory shipments resulted from the strong Japanese position in 64K dynamic RAMs, CMOS static RAMs, and EPROMs.

Japanese suppliers saw their shipments of discrete devices decline by almost 24 percent and optoelectronics decline by slightly more than 1 percent. The dramatic decline in discrete shipments was largely due to the weakness of the video tape recorder (VTR) market in Japan and worldwide. Because of excess inventories of VTRs in 1982 and a corresponding weak market, production of these products was cut dramatically in 1982. Furthermore, some of the newer VTR designs are incorporating more integration, which reduces the number of discrete devices from about 300 small signal discretes per VTR to fewer than 100 per VTR.

Worldwide semiconductor shipments by the U.S. and West European suppliers increased an estimated 1 percent in 1982, measured in U.S. dollars. The integrated circuit shipments of these suppliers increased 4 percent, with bipolar digital essentially flat, MOS increasing 7 percent, and linear integrated circuits increasing 3 percent. Discrete device shipments by these same suppliers declined 8 percent, while optoelectronic shipments increased 2 percent. The MOS memory shipments by these suppliers increased about 18 percent.

It was a difficult year for all semiconductor suppliers in 1982. The semiconductor market as a whole grew only marginally, but there were pockets of strength in some end-user markets—specifically personal computers, home computers, small business systems, and video games. The semiconductor parts that recorded the most growth in 1982 included 64K dynamic RAMs, CMOS static RAMs, high-density EPROMs, and ROMs. Bipolar logic was particularly weak as were linear and discrete devices.

Table 3 shows the worldwide semiconductor revenues of the leading merchant semiconductor suppliers. These preliminary estimates show that the top ten suppliers include five U.S. companies, four Japanese companies, and one European

company. These ten companies had collective semiconductor revenues of \$7.7 billion, or 52 percent of the total market. The 39 leading semiconductor suppliers had total 1982 shipments of \$12.7 billion, which represented 86 percent of the worldwide semiconductor market in 1982.

Table 4 compares the 1982 worldwide semiconductor revenues with the 1981 semiconductor revenues of these 39 leading suppliers, and shows the year-to-year percent change together with the 1982 and 1981 ranking. Texas Instruments, Motorola, Nippon Electric, Hitachi, and Toshiba were the top five producers, each retaining the same ranking as 1981. The next three positions were held by National Semiconductor, Intel, and Philips, with no changes from their 1981 rankings. Fujitsu jumped into ninth place from eleventh place, and Fairchild retained its tenth place ranking.

The year-to-year growth in total revenues ranges from a growth of 30 percent for Ferranti to a decline of 14 percent for Matsushita and Sanyo. The dollar revenue growth in 1982 for each company depended to a large degree upon its product positioning in the marketplace as well as the currency exchange rates.

Integrated Circuit Market Shares

Table 5 shows DATAQUEST's preliminary estimates for 1982 worldwide integrated circuit revenues as compared with 1981 results for the 30 leading integrated circuit suppliers. The \$9,187 million shipments by these suppliers represented 87 percent of the 1982 IC market. While the worldwide IC market grew 7.2 percent in 1982, some suppliers, such as General Instrument, had revenue growth of as much as 27 percent while others saw their IC revenues drop as much as 12 percent. Unfavorable exchange rates affected some of these comparisons. Texas Instruments remains the leading IC supplier with an 11 percent market share, followed by Motorola with a 7 percent market share. The top ten suppliers in 1982 accounted for 57 percent of the total market, a slight decrease from 1981 when the top ten suppliers accounted for 58 percent of the total market.

Bipolar Digital Market Shares

Table 6 shows the preliminary estimates of the 1982 worldwide bipolar digital revenues of the 18 leading bipolar digital suppliers in 1982 compared with their 1981 results. These leading bipolar digital suppliers had total shipments of \$2,229 million or 88 percent of the market. As noted earlier, the worldwide bipolar digital market grew by 5.6 percent in 1982. Texas Instruments remained the leading bipolar digital supplier with a 21 percent market share followed by Signetics with a 9 percent market share.

MOS Digital Market Shares

Table 7 shows the preliminary estimates of 1982 digital MOS integrated circuits revenues of the 27 leading MOS suppliers compared with their 1981 results. Their collective shipments were \$4,904 million or 94 percent of the market. Intel remains the leading digital MOS IC supplier with a 10 percent market share, followed closely by NEC with a 9 percent market share, and Motorola with an 8 percent market share.

Linear Integrated Circuit Market Shares

Table 8 shows the preliminary estimates of 1982 linear integrated circuit revenues of the 15 leading linear suppliers compared with their 1981 results. The combined shipments of these suppliers was \$1,834 million, or 66 percent of the worldwide linear market, one which declined 0.4 percent in 1982 versus 1981. Texas Instruments became the leading linear IC supplier in 1982 with a 9 percent market share, followed closely by National Semiconductor with an 8 percent share, and Motorola with a 6 percent share.

Discrete and Optoelectronic Market Shares

Table 9 shows the preliminary estimates of 1982 discrete plus optoelectronic revenues for the 21 leading suppliers compared with their 1981 revenues. These leading suppliers had combined shipments of \$3,081 million or 73 percent of the discrete market. While the worldwide discrete plus optoelectronic market declined 7.2 percent in 1982, individual performances ranged from a 6 percent increase for Telefunken Elektronik to a 34 percent decline for Texas Instruments. The decline recorded by Texas Instruments reflects their decreased participation in the small signal transistor and small signal diode markets. Motorola remains the leading discrete plus optoelectronic supplier with a 10 percent market share, followed by Toshiba with a 7 percent share, and NEC with a 6 percent share.

Daniel L. Klesken
Barbara A. Van

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The year-to-year growth in total revenues ranges from a growth of 30 percent for Ferranti to a decline of 14 percent for Matsushita and Sanyo. The dollar revenue growth in 1982 for each company depended to a large degree upon its product positioning in the marketplace as well as the currency exchange rates.

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Bipolar Digital Market Shares

Table 6 shows the preliminary estimates of the 1982 worldwide bipolar digital revenues of the 18 leading bipolar digital suppliers in 1982 compared with their 1981 results. These leading bipolar digital suppliers had total shipments of \$2,229 million or 88 percent of the market. As noted earlier, the worldwide bipolar digital market grew by 5.6 percent in 1982. Texas Instruments remained the leading bipolar digital supplier with a 21 percent market share followed by Signetics with a 9 percent market share.

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Linear Integrated Circuit Market Shares

Table 8 shows the preliminary estimates of 1982 linear integrated circuit revenues of the 15 leading linear suppliers compared with their 1981 results. The combined shipments of these suppliers was \$1,834 million, or 66 percent of the worldwide linear market, one which declined 0.4 percent in 1982 versus 1981. Texas Instruments became the leading linear IC supplier in 1982 with a 9 percent market share, followed closely by National Semiconductor with an 8 percent share, and Motorola with a 6 percent share.

Discrete and Optoelectronic Market Shares

Table 9 shows the preliminary estimates of 1982 discrete plus optoelectronic revenues for the 21 leading suppliers compared with their 1981 revenues. These leading suppliers had combined shipments of \$3,081 million or 73 percent of the discrete market. While the worldwide discrete plus optoelectronic market declined 7.2 percent in 1982, individual performances ranged from a 6 percent increase for Telefunken Elektronik to a 34 percent decline for Texas Instruments. The decline recorded by Texas Instruments reflects their decreased participation in the small signal transistor and small signal diode markets. Motorola remains the leading discrete plus optoelectronic supplier with a 10 percent market share, followed by Toshiba with a 7 percent share, and NEC with a 6 percent share.

Daniel L. Klesken
Barbara A. Van

Table 1

ESTIMATED WORLDWIDE MERCHANT MARKET SEMICONDUCTOR CONSUMPTION
(Millions of U.S. Dollars)

	<u>1981</u>	<u>1982</u>	<u>Percent Change</u>
Integrated Circuits			
Bipolar Digital	\$ 2,391	\$ 2,525	5.6%
MOS	4,639	5,221	12.5%
Linear	<u>2,775</u>	<u>2,765</u>	-0.4%
Total IC	\$ 9,805	\$10,511	7.2%
Discretes	3,837	3,510	-8.5%
Optoelectronics	<u>736</u>	<u>726</u>	-1.4%
Total Semiconductor	\$14,378	\$14,747	2.6%

Source: DATAQUEST
January 1983

Table 2

CHANGES IN SEMICONDUCTOR REVENUES
1982 VERSUS 1981
(Measured in U.S. Dollars)

	<u>U.S. and West European Suppliers</u>	<u>Japanese Suppliers</u>
Integrated Circuits	4.0%	10.2%
Bipolar Digital	0.2%	21.9%
MOS	6.6%	19.6%
MOS Memory	18.0%	35.0%
MOS Logic	2.9%	-6.6%
Linear	3.2%	-7.0%
Discretes	-8.1%	-23.9%
Optoelectronics	2.4%	-1.1%
Total Semiconductor	0.9%	-0.4%

Sources: DATAQUEST
Semiconductor Industry Assn.
Japanese Ministry of Finance
January 1983

Table 3

PRELIMINARY ESTIMATES OF 1982 WORLDWIDE SEMICONDUCTOR
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	IC	DISC/OPTO	TOTAL
TEXAS INSTRUMENTS	1,155	145	1,300
MOTOROLA	780	439	1,219
NIPPON ELECTRIC	722	270	992
HITACHI	566	233	799
TOSHIBA	453	286	739
NATIONAL SEMICONDUCTOR	620	53	673
INTEL	578	0	578
PHILIPS	269	225	494
FUJITSU	444	37	481
FAIRCHILD	333	79	412
MATSUSHITA	237	171	408
SIGNETICS	340	0	340
AMD	329	0	329
SIEMENS	160	168	328
MITSUBISHI	232	89	321
GENERAL INSTRUMENT	203	110	313
RCA	194	97	291
MOSTEK	220	0	220
ITT	90	100	190
SANYO	141	44	185
THOMSON-CSF	62	122	184
SGS-ATES	126	49	175
AMI	160	0	160
HARRIS	153	0	153
TELEFUNKEN ELEKTRONIK*	44	106	150
SHARP	123	16	139
OKI	120	3	123
GENERAL ELECTRIC	3	104	107
ANALOG DEVICES	106	0	106
COMMODORE	95	5	100
SYNERTEK	88	0	88
TRW	35	48	83
FERRANTI	68	14	82
INTERNATIONAL RECTIFIER	0	82	82
HEWLETT-PACKARD	0	80	80
ROCKWELL	80	0	80
INTERSIL	67	8	75
UNITRODE	2	73	75
MHI	70	0	70
TOTAL:	9,468	3,256	12,724

* FORMERLY AEG-TELEFUNKEN

Source: DATAQUEST
January 1983

Table 4

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE SEMICONDUCTOR
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

1982 RANK	1981 RANK	COMPANY	1981	1982	% CHANGE
1	1	TEXAS INSTRUMENTS	1,295	1,300	0.39
2	2	MOTOROLA	1,190	1,219	2.44
3	3	NIPPON ELECTRIC	958	992	3.55
4	4	HITACHI	824	799	-3.03
5	5	TOSHIBA	768	739	-3.78
6	6	NATIONAL SEMICONDUCTOR	704	673	-4.40
7	7	INTEL	508	578	13.78
8	8	PHILIPS	482	494	2.49
9	11	FUJITSU	414	481	16.18
10	10	FAIRCHILD	462	412	-10.82
11	9	MATSUSHITA	476	408	-14.29
12	12	SIGNETICS	366	340	-7.10
13	16	AMD	279	329	17.92
14	13	SIEMENS	337	328	-2.67
15	14	mitsubishi	321	321	0.00
16	17	GENERAL INSTRUMENT	274	313	14.23
17	15	RCA	293	291	-0.68
18	19	NOSTEK	210	220	4.76
19	21	ITT	175	190	8.57
20	18	SANYO	216	185	-14.35
21	20	THOMSON-CSF	181	184	1.66
22	23	SGS-ATES	160	175	9.38
23	25	AMI	133	160	20.30
24	22	HARRIS	165	153	-7.27
25	24	TELEFUNKEN ELEKTRONIK *	141	150	6.38
26	26	SHARP	125	139	11.20
27	28	OKI	97	123	26.80
28	27	GENERAL ELECTRIC	121	107	-11.57
29	29	ANALOG DEVICES	89	106	19.10
30	31	COMMODORE	85	100	17.65
31	35	SYNERTEK	72	88	22.22
32	33	TRW	77	83	7.79
33	39	FERRANTI	63	82	30.16
34	30	INTERNATIONAL RECTIFIER	86	82	-4.65
35	32	HEWLETT-PACKARD	84	80	-4.76
36	36	ROCKWELL	70	80	14.29
37	34	INTERSIL	75	75	0.00
38	37	UNITRODE	70	75	7.14
39	38	MNI	68	70	2.94
TOTAL:			12,514	12,724	

* FORMERLY AEG-TELEFUNKEN

Source: DATAQUEST
January 1983

Table 5

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE INTEGRATED CIRCUIT
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
TEXAS INSTRUMENTS	1,075	1,155	7.44
MOTOROLA	730	780	6.85
NIPPON ELECTRIC	646	722	11.76
NATIONAL SEMICONDUCTOR	648	620	-4.32
INTEL	508	578	13.78
HITACHI	519	566	9.06
TOSHIBA	424	453	6.84
FUJITSU	374	444	18.72
SIGNETICS	366	340	-7.10
FAIRCHILD	370	333	-10.00
AMD	279	329	17.92
PHILIPS	240	269	12.08
MATSUSHITA	253	237	-6.32
MITSUBISHI	212	232	9.43
MOSTEK	210	220	4.76
GENERAL INSTRUMENT	160	203	26.88
RCA	192	194	1.04
AMI	133	160	20.30
SIEMENS	155	160	3.23
HARRIS	165	153	-7.27
SANYO	161	141	-12.42
SGS-ATES	110	126	14.55
SHARP	105	123	17.14
OKI	95	120	26.32
ANALOG DEVICES	89	106	19.10
COMMODORE	80	95	18.75
ITT	78	90	15.38
SYNERTEK	72	88	22.22
ROCKWELL	70	80	14.29
NMI	68	70	2.94
TOTAL:	8,587	9,187	

Source: DATAQUEST
January 1983

Table 6

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE BIPOLAR DIGITAL
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
TEXAS INSTRUMENTS	510	520	1.96
SIGNETICS	268	233	-13.06
FAIRCHILD	226	206	-8.85
MOTOROLA	192	190	-1.04
NATIONAL SEMICONDUCTOR	175	165	-5.71
AMD	135	155	14.81
FUJITSU	122	149	22.13
HITACHI	95	111	16.84
NIPPON ELECTRIC	78	85	8.97
MMI	68	70	2.94
HARRIS	78	68	-12.82
PHILIPS	30	57	90.00
SIEMENS	52	56	7.69
MITSUBISHI	38	44	15.79
INTEL	33	38	15.15
FERRANTI	14	32	128.57
TOSHIBA	27	29	7.41
MATSUSHITA	16	21	31.25
TOTAL:	2.157	2.229	

Source: DATAQUEST
January 1983

Table 7

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE MOS
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
INTEL	475	540	13.68
NIPPON ELECTRIC	403	484	20.10
MOTOROLA	372	425	14.25
TEXAS INSTRUMENTS	350	400	14.29
TOSHIBA	267	323	20.97
HITACHI	238	306	28.57
FUJITSU	226	272	20.35
NATIONAL SEMICONDUCTOR	255	235	-7.84
MOSTEK	210	220	4.76
GENERAL INSTRUMENT	148	183	23.65
AMI	133	160	20.30
AMD	121	150	23.97
MITSUBISHI	99	125	26.26
RCA	110	118	7.27
OKI	77	101	31.17
SHARP	82	100	21.95
COMMODORE	80	95	18.75
PHILIPS	70	90	28.57
SYNERTEK	72	88	22.22
MATSUSHITA	83	83	0.00
ROCKWELL	70	80	14.29
ITT	59	70	18.64
SIEMENS	65	64	-1.54
FAIRCHILD	65	50	-23.08
SIGNETICS	36	49	36.11
HARRIS	52	48	-7.69
SGS-ATES	33	45	36.36
TOTAL:	4.251	4.904	

Source: DATAQUEST
January 1983

Table 8

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE LINEAR
REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
TEXAS INSTRUMENTS	215	235	9.30
NATIONAL SEMICONDUCTOR	218	220	0.92
MOTOROLA	166	165	-0.60
NIPPON ELECTRIC	165	153	-7.27
HITACHI	186	149	-19.89
MATSUSHITA	154	133	-13.64
PHILIPS	140	122	-12.86
ANALOG DEVICES	89	106	19.10
SANYO	126	106	-15.87
TOSHIBA	130	101	-22.31
FAIRCHILD	79	77	-2.53
SGS-ATES	63	76	20.63
RCA	76	70	-7.89
mitsubishi	75	63	-16.00
SIGNETICS	62	58	-6.45
TOTAL:	1.944	1.834	

Source: DATAQUEST
January 1983

Table 9

PRELIMINARY ESTIMATES OF 1982 VERSUS 1981 WORLDWIDE DISCRETE PLUS
OPTOELECTRONIC REVENUES OF LEADING SUPPLIERS
(Millions of Dollars)

COMPANY	1981	1982	% CHANGE
MOTOROLA	460	439	-4.57
TOSHIBA	344	286	-16.86
NIPPON ELECTRIC	312	270	-13.46
HITACHI	305	233	-23.61
PHILIPS	242	225	-7.02
MATSUSHITA	223	171	-23.32
SIEMENS	182	168	-7.69
TEXAS INSTRUMENTS	220	145	-34.09
THOMSON-CSF	122	122	0.00
GENERAL INSTRUMENT	114	110	-3.51
TELEFUNKEN ELEKTRONIK *	100	106	6.00
GENERAL ELECTRIC	118	104	-11.86
ITT	97	100	3.09
RCA	101	97	-3.96
MITSUBISHI	109	89	-18.35
INTERNATIONAL RECTIFIER	86	82	-4.65
HEWLETT-PACKARD	84	80	-4.76
FAIRCHILD	92	79	-14.13
UNITRODE	70	73	4.29
NATIONAL SEMICONDUCTOR	56	53	-5.36
SGS-ATES	50	49	-2.00
TOTAL:	3,487	3,081	

* FORMERLY AEG-TELEFUNKEN

Source: DATAQUEST
January 1983

SIS Code: Appendix B

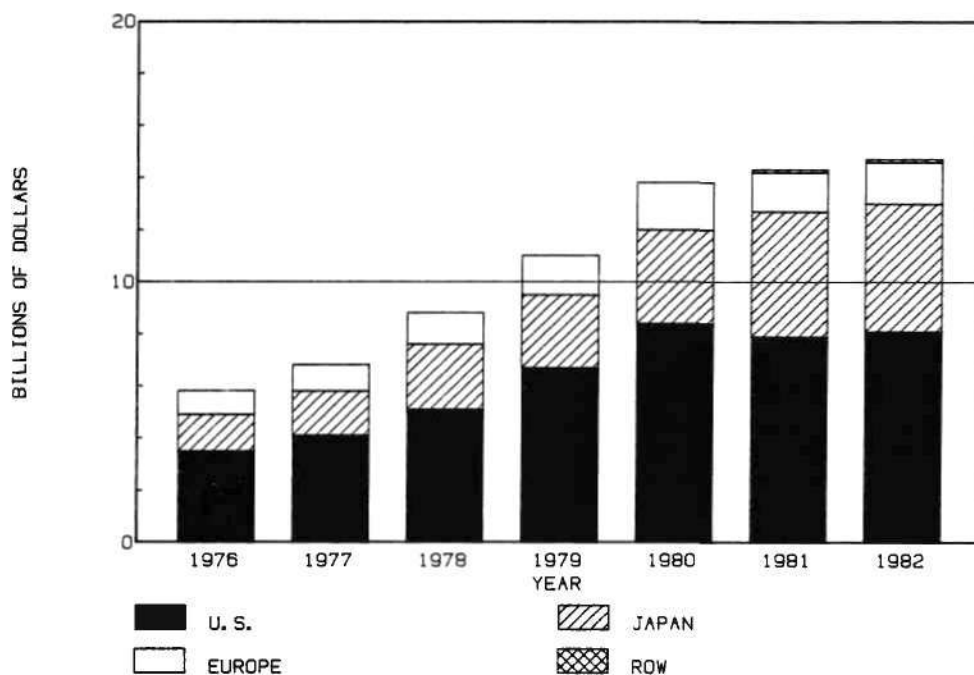
APPENDIX B - MARKET SHARE ESTIMATES

SUMMARY

DATAQUEST estimates that revenue from worldwide semiconductor shipments grew at a compound annual growth rate (CAGR) of 16.7 percent, between 1976 and 1982. By regional company base, U.S. and European-based companies experienced below average growth, at 14.9 percent and 11.2 percent, respectively, while Japanese and rest of world (ROW)-based companies growth exceeded the industry average, with 23.0 percent and 26.9 percent, (CAGR) respectively. Figure 1 illustrates actual shipment values of semiconductors, by geographic region.

Figure 1

TOTAL SEMICONDUCTOR SHIPMENTS (Billions of Dollars)



Source: DATAQUEST

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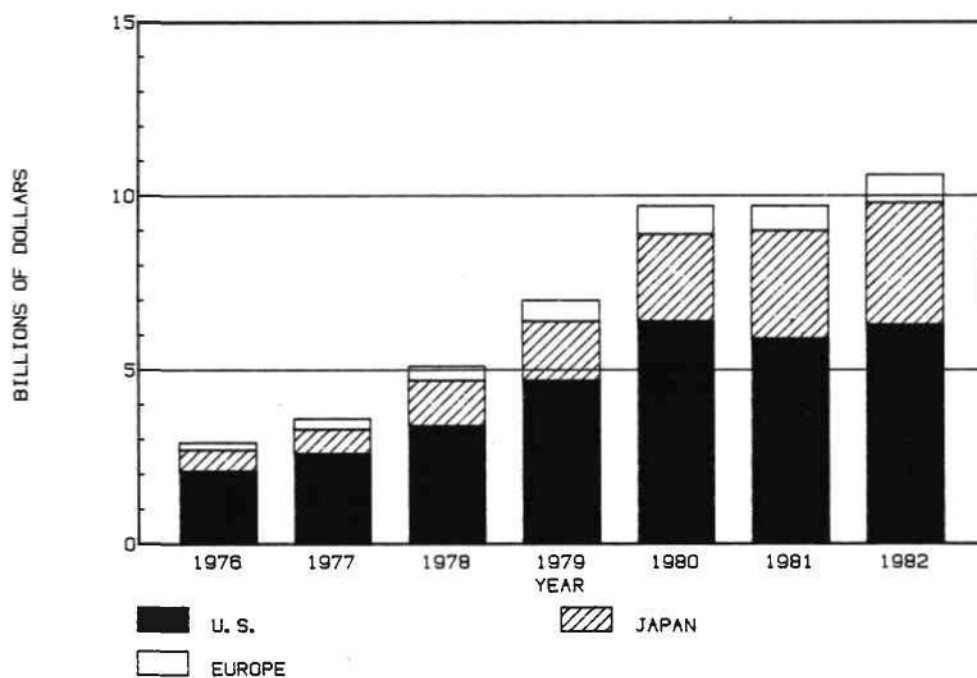
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WORLDWIDE INTEGRATED CIRCUIT SHIPMENT ESTIMATES

Between 1976 and 1982, DATAQUEST estimates that the revenue from worldwide integrated circuits market grew at a CAGR of 23.7 percent. Japanese companies grew the fastest, with a 33.5 percent CAGR. U.S. and European companies grew slightly below the norm, at 20.3 percent and 21.1 percent, respectively. The ROW companies are becoming more significant in the market; however, they represent less than 1 percent of the integrated circuit market. For details on shipments of integrated circuits by region, refer to Figure 2.

Figure 2

TOTAL INTEGRATED CIRCUIT SHIPMENTS (Billions of Dollars)



Source: DATAQUEST

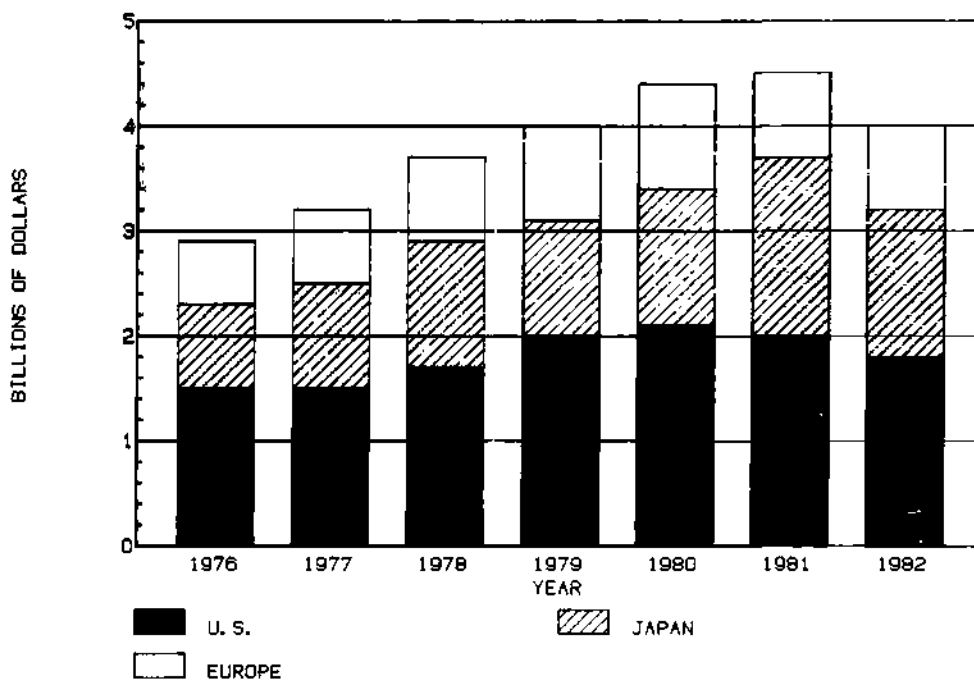
The Appendix B service section breaks the integrated circuit market into three major segments: bipolar, MOS, and linear. Bipolar and MOS categories are further segmented by technology and function (i.e., memory, microprocessor, and/or logic). The linear category is not presently defined by function, but it is expected to be identified in the near future.

WORLDWIDE DISCRETE/OPTOELECTRONICS SHIPMENT ESTIMATES

Figure 3 illustrates DATAQUEST estimates of worldwide discrete and optoelectronics revenues by region. These two markets combined grew at a CAGR of 5.7 percent between 1976 and 1982. The Japanese market share increased significantly during this time, growing 10.7 percent. Europe grew at a CAGR of 5.1 percent, and the United States grew less dramatically at 2.5 percent.

Figure 3

TOTAL DISCRETE/OPTOELECTRONIC SHIPMENTS (Billions of Dollars)



Source: DATAQUEST

1982 APPENDIX B CHANGES

DATAQUEST has added several companies to the Appendix B, market share analysis. We presently cover more than 70 companies worldwide. Approximately 52 of these companies are U.S.-based, 11 are European-based, and 9 are Japanese-based. The 1982 additions to our market share study include Acrian, Micron Technology, Micro Power Systems, Silicon Systems, and VLSI Technology in the United States; Sharp and Oki in Japan; and ASEA-HAFO, INMOS, Matra-Harris, and Semikron in Europe.

Figure 4 shows a complete listing of the tables that appear in the Appendix B service section, located in Volume III of the Semiconductor Industry Service. For details on these market share tables, dated 1975 through 1982, please contact your SIS notebook holder.

Barbara A. Van

Figure 4
INDEX OF TABLES

<u>Title</u>	<u>Table</u>
Japanese Exchange Rates	B-0
Total Semiconductor	B-1
Total Integrated Circuit	B-2
Bipolar Digital (Technology)	B-3
TTL	B-4
DTL	B-5
ECL	B-6
Other	B-7
Bipolar Digital (Function) - Same as B-3	B-8
Memory	B-9
Logic	B-10
MOS (Technology)	B-11
PMOS	B-12
NMOS	B-13
CMOS	B-14
MOS (Function) - Same as B-11	B-15
Memory	B-16
Microprocessor	B-17
Logic	B-18
Linear	B-19
Amplifiers	B-20
Voltage Regulators	B-21
Data Conversion	B-22
Interface	B-23

Source: DATAQUEST